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Price Waterhouse – Medicus

Direct Nursing Requirements of Extended Care Residents in Homes for the Aged and Nursing Homes in Ontario, Vol. I

MEDICUS CANADA

Price Waterhouse

DIRECT NURSING CARE REQUIREMENTS OF EXTENDED CARE RESIDENTS IN HOMES FOR THE AGED AND NURSING HOMES IN ONTARIO, VOL. I

MARCH, 1988.

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Price Waterhouse

March 4, 1988

The Honourable Mavis Wilson
Minister for Senior Citizens' Affairs
Province of Ontario

Dear Ms. Wilson:

Price Waterhouse is pleased to submit the report on The Direct Nursing Care Requirements of Extended Care Residents in Homes for the Aged and Nursing Homes in Ontario.

We also wish to express our appreciation to the staff of the Office for Senior Citizens' Affairs and of the homes participating in the study for their assistance. Our consultants found this to be both a challenging and a rewarding assignment, and they look forward to further opportunities to serve your Office.

Yours very truly,

Tom C. O'Neill

T.C. O'Neill
Partner

TCON/sc

EXECUTIVE SUMMARY

The Office for Senior Citizens' Affairs is currently undertaking a review of extended care legislation and practices in Ontario. The purpose of this review is to revise and rationalize the extended care programs in the province. As part of this process Price Waterhouse and Medicus Canada were contracted to conduct a study of the direct personal and nursing care requirements (as defined in the legislation) of extended care residents in Nursing Homes and Homes for the Aged in Ontario. Individuals requiring at least one and a half hours of direct personal and nursing care per day are eligible for extended care. The study assessed the care required as opposed to the actual care provided to residents. The study relied on a survey of a sample of 2298 residents from across the province.

The direct personal and nursing care requirements of the residents were assessed using the Resident Care Assessment Methodology developed by Medicus Canada for use in long term care facilities. This approach assesses the level of independence, nature of dependence, and focus of care. These three components are then combined to produce a typology consisting of 24 possible Types of extended care residents. A Task Analysis is conducted to determine the average minutes of direct personal and nursing care required by each resident. The times are then combined with the typology to determine the average minutes of direct personal and nursing care required for each Type of extended care resident.

Sixty-eight facilities were randomly chosen to provide a representative sample of the entire population of extended care residents in the province. Registered nurses from each of the Homes were trained to conduct the assessments on a random sample of residents from their own facilities. Training was provided in a workshop setting as well as on an individualized basis in each Home. Telephone consultation on the use of the tools was available throughout the study.

An audit of 10 percent of the completed cases indicated 95.8 percent agreement, between the nurses from the Homes and the auditors, on the Typing of residents. All of the 2298 assessments were completed between July and October, 1987.

The age of the residents in the sample ranged from 29 to 108 years with a mean of 83 years of age. Females accounted for 72.8 percent of the sample.

The study only assessed direct personal and nursing care and does not account for time spent on indirect care (e.g. charting, medication preparation) and programming (e.g. activation and recreation). Direct care was defined as care required in the presence, and for the benefit of the resident. The results of the study indicate that the mean minutes of direct personal and nursing care required by extended care residents in Ontario is 102 minutes per day with a standard deviation of 85 minutes. The 95 percent confidence interval around the mean for the total sample ranges from 99 to 105 minutes. Homes for the Aged have a mean time of 105 minutes per day. Nursing Homes have a mean time of 99 minutes per day. The difference in average time between the two types of facilities is not statistically significant.

As previously indicated, this study examines the direct personal and nursing care requirements of residents in Nursing Homes and Homes for the Aged. The study does not examine the actual care provided to the individual resident, nor does it address specific programming or the "quality of care" provided in Extended Care facilities. Consequently, while the study indicates that the difference in average time between the two types of facilities is not statistically significant, it is not possible to draw any conclusions about the appropriateness of current funding and/or per diems in Nursing Homes and Homes for the Aged.

DIRECT NURSING CARE REQUIREMENTS OF EXTENDED CARE RESIDENTS IN HOMES FOR THE AGED AND NURSING HOMES IN ONTARIO

VOL. I

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1.0 INTRODUCTION

This report presents the results of the Care Requirements Study undertaken by Price Waterhouse and Medicus Canada for the Ontario Office Of Senior Citizens' Affairs between July and December, 1987. The direct personal and nursing care requirements (as defined in the legislation) of 2298 extended care residents residing in 68 Nursing Homes and Homes for the Aged in Ontario were assessed with the Medicus Canada Resident Care Requirement Assessment Methodology.

1.1 Background

The purpose of the study was to determine the average direct personal and nursing care requirements of extended care residents in the province. Individuals requiring at least one and a half hours of direct personal and nursing care per day are eligible for extended care. A recent White Paper issued by the Minister for Senior Citizens' Affairs - A New Agenda: Health and Social Service Strategies for Ontario's Seniors raised concerns about the Extended Care Programs in the province.

Some concerns about the current extended care program presented in the New Agenda included:

- a perception that many elderly persons who are in extended care facilities could be maintained in their homes if appropriate services were available;

- that there is a lack of consistency in the current extended care program. Three different types of providers operate under different legislation, funding mechanisms, staffing requirements, standards of care and inspection processes. Two ministries are involved in the funding and direction of extended care - the Ministry of Health and the Ministry of Community and Social Services;

- representations from extended care providers that funding is not adequate to meet the needs of an increasing number of "heavy care" residents. The average age of residents entering homes has increased progressively over recent years.

- the adequacy of current legislation with respect to issues regarding enforcement, accountability, transfer of nursing home licenses, and others.

As a result of these concerns, the Provincial Government has made a commitment to revise and rationalize the extended care program. In particular, it plans to develop new extended care legislation to ensure that all extended care providers are covered by a single act that encompasses uniform criteria in such areas as quality of care, staffing, programming, inspection services, and physical plant standards.

In order to meet this objective, it is necessary to identify the direct care requirements of residents in Nursing Homes and Homes for the Aged. Consequently, the Office for Senior Citizens' Affairs commissioned this study of the direct nursing care requirements of extended care residents.

1.2 The Study

The study focused on the care requirements of a representative random sample of extended care residents in 43 Nursing Homes and 25 Homes for the Aged. Direct care was defined as nursing care provided in the presence, and for the benefit of the resident. Nurses from each of the participating facilities were trained to conduct the care requirement assessments on extended care residents in their own facilities.

This report is presented in two volumes. Volume I includes:

- Resident Care Requirement Methodology;
- Data Collection Methodology; and,
- Presentation of Results.

Volume II provides technical support documentation for the Medicus Canada Resident Care Requirement Methodology. Documents included in this volume are:

1. Medicus Long-Term Care Resident Typing Instruments
2. Indicator Weightings Used to Measure Dependency on Nursing
3. Task Times
4. Decision Rules for Resident Typing
5. Decision Rules for Task Analysis
6. Facilities Participating in the Study

Exhibit I

STANDARDS FOR THE SELECTION OF RESIDENT CLASSIFICATION TOOLS

1. The tool should measure actual direct personal and nursing care required as opposed to care given.

2. There should be adequate item sampling and coverage across all domains of direct personal and nursing care requirements.

3. The tool should have been tested in a long-term care environment.

4. The tool should minimally demonstrate formal testing for content validity and optimally demonstrate criterion-related validity.

5. The tool should demonstrate the achievability of at least .80 inter-rater and inter-home reliability.

6. The items measured should be objective, requiring minimal inference or subjective evaluation by the data collector.

7. Criteria measured should be based on characteristics of residents and use data typically available on residents of Ontario Nursing Homes and Homes for the Aged.

8. Measurement criteria/items when possible should focus on resident characteristics that contribute to the need for nursing care rather than solely on resources used or services provided.

9. Care requirement resident classification categories should be mutually exclusive, collectively exhaustive, reliable, valid and sufficient in number to explain observed variance while producing categories that are homogeneous with respect to care required.

10. There should be no potential double counting of nursing care time.

11. The amount of development work required prior to data collection, as well as the ease of data collection and analysis (including availability and cost of computerization), are additional concerns which need to be addressed.

2.0 RESIDENT CARE REQUIREMENT ASSESSMENT METHODOLOGY

To assist with the study and in keeping with the government's consultative approach, a joint Provincial/Provider Steering Committee was established with representatives from the Office for Senior Citizens' Affairs (OSCA), the Ontario Association of Non-Profit Homes and Services for Seniors (OANHSS)[1], Ontario Nursing Home Association (ONHA), Ministry of Community and Social Services (MCSS), and Ministry of Health (MOH).

The Committee agreed on the sample of Nursing Homes and Homes for the Aged, the consulting organization to conduct the study, and the assessment instrument to be used.

The Medicus Canada methodology was selected from other available methodologies because it best met the selection criteria approved by the Steering Committee for the Care Requirements Study (Exhibit 1, Opposite). This section of the report provides a brief description of the Medicus Canada Methodology.

2.1 Overview of the Medicus Methodology

Identifying the requirements of care for residents within long-term care facilities poses a special challenge within the current Health Care System. Goals for resident care and nursing philosophy of care often vary from one resident to another and from one facility to another. Residents have varied degrees of psychosocial and physical disfunction and thus possess different levels of restorative potential. Medicus has incorporated these details into the development of a comprehensive approach to identifying the requirements for care of all residents of long-term care facilities.

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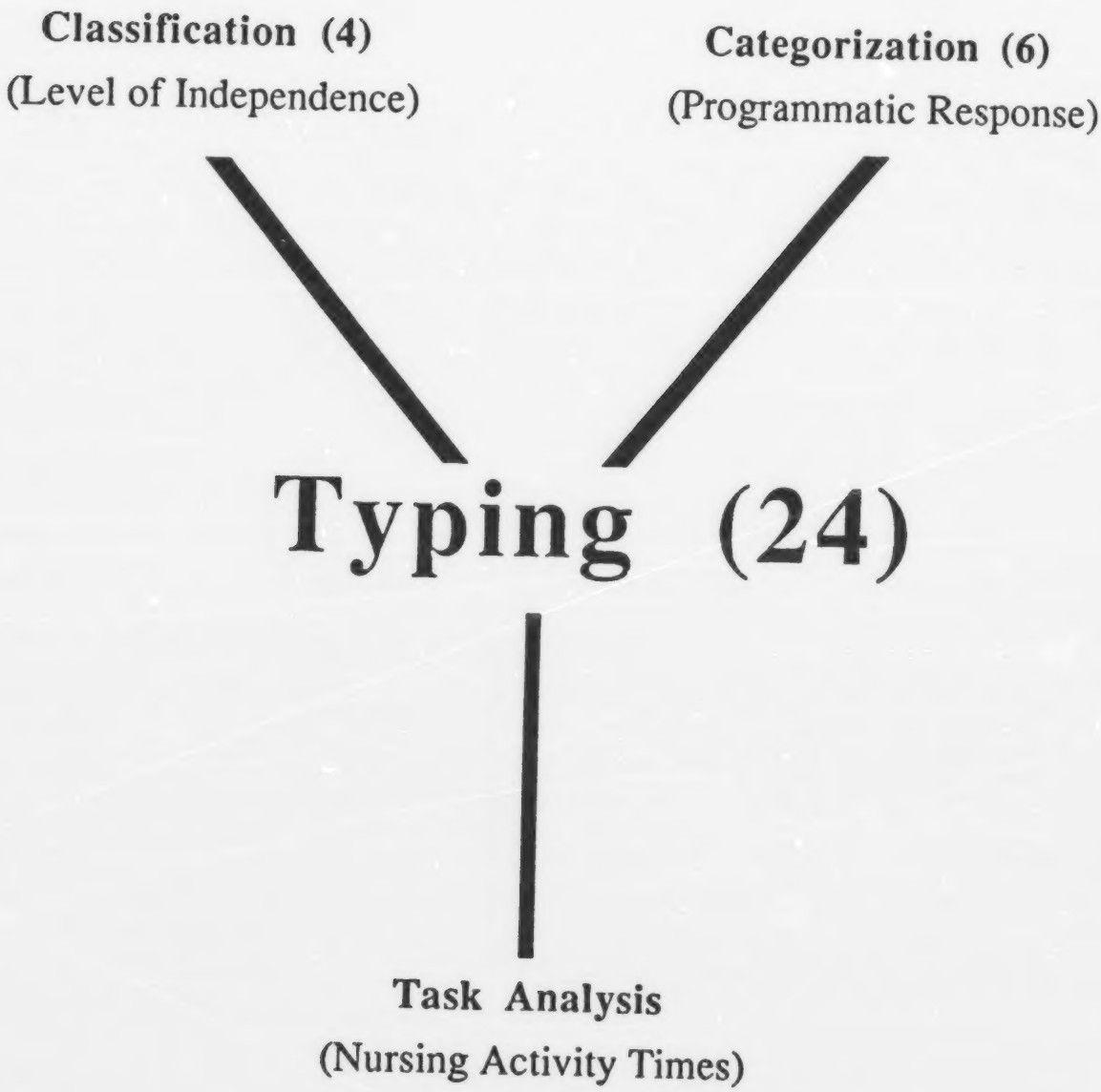
1 Formerly the Ontario Association of Homes for the Aged (OAHA).

Exhibit 2

Medicus
Long Term Care
Methodology



The Medicus Canada methodology for determining resident care requirements, used in this study, consists of four inter-related components:

- **Classification**
  Classification determines the resident's level of independence.

- **Categorization**
  Categorization determines the nature and focus of the nursing response to resident's level of independence.

- **Typing**
  Typing combines the classification and categorization components to provide a basis for determining the type and amount of nursing care required.

- **Task Analysis**
  Task Analysis establishes the absolute amount of time required to care for each resident and then for an average resident of each type.

The combination of Classification (identifying the patient's level of independence) with Categorization (identifying the appropriate programmatic response) to type the resident produces a comprehensive approach for grouping patients into categories who have similar requirements for type and amount of care (see Exhibit 2, opposite). The addition of Task Analysis, which incorporates the activities required, their frequency and the amount of time required to perform each activity, provides a mechanism for identifying the requirements for care to meet the special needs of each individual resident. Averaging the time requirements of individual residents within a Type will provide the time required, on average, to meet the needs of that type of resident.

EXHIBIT 3

MEDICUS LONG-TERM CARE RESIDENT TYPING INSTRUMENT

Facility: _____ [| | |] Resident ID: [| | |]

Unit : _____ Date : [| | | | | |] Assessor: _____

D M Y

	ASSESSOR	FOR OFFICE USE ONLY
1. Admission/Transfer In		
2. Discharge/Transfer Out		
3. Out on Pass		
4. Room Change		
5. Social Isolation - Hi		
6. Social Isolation - Lo		
7. Aggressive/Disruptive		
8. Inappropriate Sexual Behaviour		
9. Suspicious Behaviour		
10. Suicidal Behaviour		
11. Resident/Family Conference		
12. Special Emotional Needs		
13. Sensory/Communications Deficits		
14. Confused/Disoriented		
15. Complete Immobility		
16. Partial Immobility		
17. Incontinent of Bowel or Bladder		
18. Bed Rest		
19. Bath - Total		
20. Bath with Assistance		
21. Total Feed		
22. Feed - with Assistance		
23. Feed - no Assistance		
24. Room Isolation		
25. Close Observation		
26. Monitor Q 15'		
27. Monitor Q 30'		
28. Vital Signs Q2 Hours/More Often		
29. Intake & Output		
30. Catheter Care		
31. Extensive Wound/Skin Care		
32. Simple Wound/Skin Care		
33. Tests and/or Procedures		
34. Specimen Collection		
35. Restraint Application		
36. Safety Supervision		
37. Room Search		
38. Special Teaching Needs		

Based on assessment of the resident's needs, which of these two statements **should be** the primary focus when preparing the resident's care plan?

A. Interventions directed at maintaining or managing current status or coping with status during deterioration? ☐

B. Interventions directed at improving functional status? ☐

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This framework addresses all aspects of the patient's needs by taking into consideration a goal-oriented philosophy of care for the promotion of wellness and independence.

It should be noted that the methodology was adapted for the purposes of this study to measure only the direct nursing and personal care time requirements of residents. (Where direct care has been defined to be those elements of care provided in the presence of and for the benefit of the resident). No attempt has been made to measure the indirect care requirements of residents.

The following paragraphs provide a brief description of each element of the Medicus methodology.

2.2 Classification

Classification involves determination of the resident's level of independence and related requirements for nursing assistance. The Medicus classification instrument incorporates 38 condition indicators that are used to measure a resident's functional independence (Exhibit 3, opposite). Specific definitions for each indicator are provided in Volume II of the Report.

Using the Medicus Canada methodology, classification is a process for assigning residents to one of four classes. The determination of the Class is based on an assessment of the resident's level of independence. Specific indicators are selected and their weights are summed to determine the total points for the resident (the weights for each indicator are listed in Volume II of this report). The comparison of the total points to pre-defined point ranges assigns the resident to Class I, Class II, Class III or Class IV. Each of these Classes is representative of the resident's level of independence/dependence and related requirements for nursing assistance.

The four resident classes can be characterized as follows:

- Class I residents usually participate independently or with minimal guidance/support in their therapeutic program;

- Class II residents usually require intermittent nursing assistance and support with some ADL activities throughout the day;

- Class III residents, because of alterations in mental status and/or general debility, may require regular ADL support for most activities including ambulation, bathing, grooming, eating and toileting throughout the day. In addition, care requirements may necessitate on-going supervision and assessment; and

- Class IV residents are severely disabled and are incapable of making responsible judgments about themselves and/or their needs for care. They are in need of constant assessment, observation and supervision.

2.3 Categorization

Once residents are classified as to their level of independence, they are then categorized in relation to the nature of their dependence and then to the appropriate programmatic characteristics of the nursing response. The following is an outline of the categorization process:

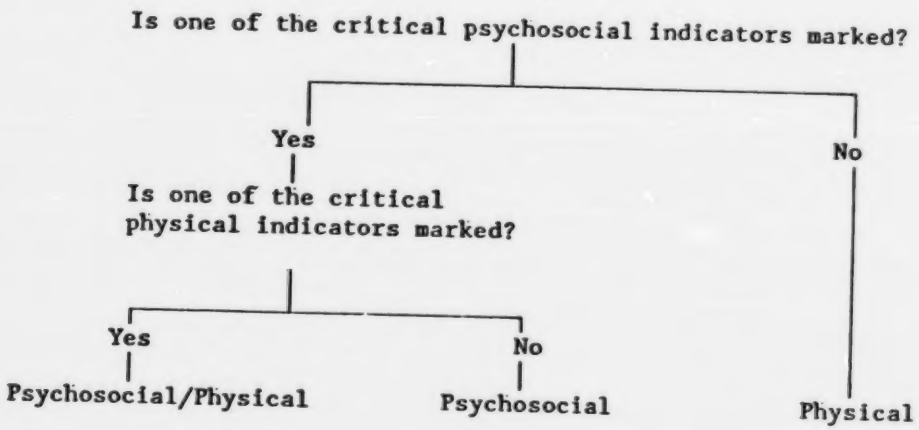
Nature of Dependence

The following indicators have been determined to be the critical indicators for determining the primary nature of the

resident's dependence and related care requirements. If only one of the following indicators is selected, it is an indication of the nature of the resident's needs, i.e., psychosocial or physical; in cases where an indicator from both groups is selected, the resident's need is characterised as being both psychosocial and physical.

Critical Psychosocial Indicators	Critical Physical Indicators
Confused/Disoriented	Complete Immobility
Social Isolation - High	Total Feed
Aggressive/Disruptive	Intake and Output
Inappropriate Sexual Behaviour	Catheter Care
Suspicious Behaviour	Extensive Wound/Skin Care
Suicidal Behaviour	Room Isolation

The following decision tree provides an indication of how the critical indicators are used to determine the nature of the resident's dependence.



Using the decision tree, residents are placed in one of three categories of dependence. If none of the critical psychosocial indicators are selected, then the resident's primary care requirements are related to a "physical" dependence. If at least one of the psychosocial indicators is checked and none of the critical physical indicators is checked, then the resident's primary care requirements are related to a "psychosocial" dependence. If, however, at least one critical physical and one critical psychosocial indicator is checked, then the resident's primary care requirements are related to both "psychosocial and physical" dependencies.

To reduce the possibility of observer error and/or bias, the logic of the decision tree is incorporated into the computer program. Assignment of residents to class, Category or Type is not performed by the assessor.

Focus of Care

The final element of the categorization process involves determining the focus of nursing care in response to the requirements of the resident. This is based on the assessors response to the following question contained in the assessment instrument:

> **Based on an assessment of the resident's needs, which of these two statements <u>should be</u> the primary focus when preparing the resident's care plan?**
>
> 1. Interventions directed at maintaining or managing current status or coping with status during deterioration.
>
> 2. Interventions directed at improving functional status.

Based on the response, the focus of the care provided to the resident is characterized by either maintenance of the resident's current level of functioning or restoration of the residents functioning.

Category of Care

Combining the nature of dependence with the focus of care results in six possible categories:

- Maintenance in relation to level of physical independence
- Maintenance in relation to level of psychosocial independence
- Maintenance in relation to both physical and psychosocial independence
- Restoration of level of physical independence
- Restoration of level of psychosocial independence
- Restoration of both physical and psychosocial independence

2.4 Typing

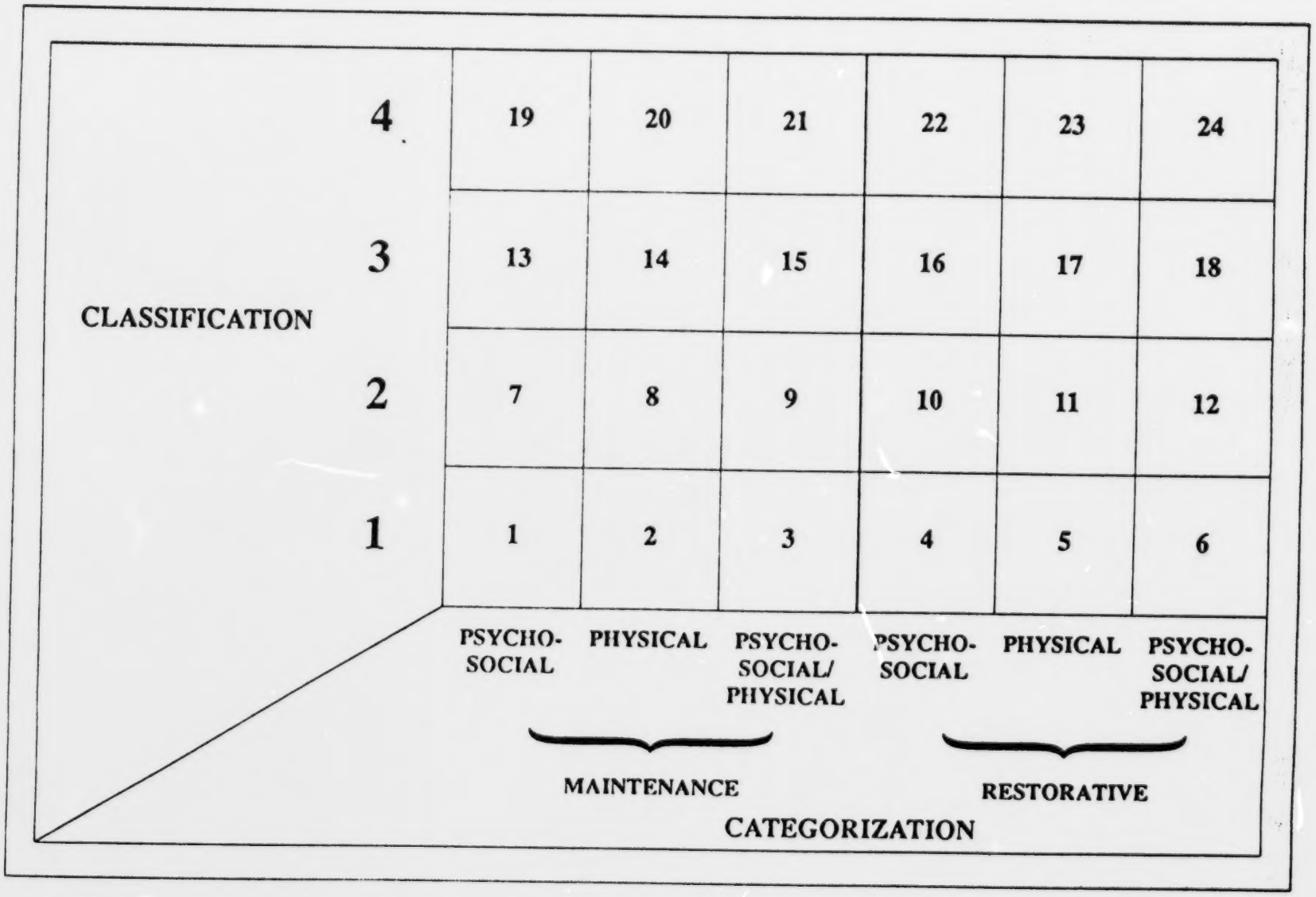
Typing is the combination of the classification and categorization components of the methodology. It provides a comprehensive characterization of the residents:

- Level of independence
- Nature of any dependency

EXHIBIT 4

TYPING

(REQUIREMENTS OF CARE)



- Primary focus of the resident's care requirements

The combination of the four classes with the six categories results in a matrix containing 24 cells (Exhibit 4, opposite). Each of these cells or Resident Types is a grouping of residents who can be expected to be similar with respect to both the type and amount of nursing care required.

2.5 Task Analysis

Task Analysis establishes the absolu amount of time required to care for a resident of each type.

The process of Task Analysis begins with the selection of required nursing activities and the frequency with which the activities should be performed to appropriately meet the needs of the resident.

In the Medicus methodology, a total of 71 nursing interventions or activities are used to represent resident care requirements (Exhibit 5 , following). Data collectors determine first whether an intervention is required and then the daily/weekly frequency with which an activity would be completed on behalf of a resident. In addition, they assess if the individual resident would require an average amount of time, less than average or more than average time to complete the task. Most tasks can have a large range of time associated with their completion depending upon the characteristics of the resident and the skill set of the nurse. Use of the low, medium and high service times reflects this variability and enhances the overall accuracy and sensitivity of the approach.

Task times were developed by Medicus Canada in a previous study: The Nursing Home Simulation Model - A Policy Tool for Long-Term

EXHIBIT 5

MEDICUS CANADA

RESIDENT INFORMATION

A. DATE OF INITIAL ADMISSION: ___ ___ ___ (D M Y)

B. DATE OF BIRTH: ___ ___ ___ (D M Y)

C. GENDER: ____MALE ____FEMALE

TASK ANALYSIS

ACTIVITY		FREQUENCY		SERVICE TIME			ACTIVITY		FREQUENCY		SERVICE TIME		
NO	NAME	DAILY	WKLY	L	M	H	NO	NAME	DAILY	WKLY	L	M	H
1	Morning Care						38	Supp Bandage					
2	Evening Care						39	Rest Care					
3	Comp Bed Bath						40	Health Teaching					
4	Par Bed Bath						41	Therapeutic Comm					
5	Shower Bath												
6	Tub Bath						42	Feed-Cut Brk.					
7	Shampoo						43	Feed-Cut Lch.					
8	Facial Shave						44	Feed-Cut Spr.					
9	Oral Hygene						45	Feed-Spoon Brk					
10	Perineal Care						46	Feed-Spoon Lch.					
11	Care of Nails						47	Feed-Spoon Spr.					
12	Skin Care						48	Gavage					
13	Pre-Meal Brk						49	Nourishments					
14	Pre-Meal Lch						50	Push Fluids					
15	Pre-Meal Spr.												
							51	Toilet Bathm.					
16	Ambulation						52	Toilet Comde.					
17	Trans. Part. Ass.						53	Bedpan					
18	Trans F.Mech Ass						54	Urinal					
19	Transfer Inst						55	Catheterizin					
20	Transpt Intr.						56	Incontinent Care					
21	Transpt Extro.						57	Bladder Irrign.					
22	Passive Exer.						58	Enema					
23	Act.Ass. Exer.						59	Colostomy Cr.					
24	Act. Exer.						60	Emp Drn Bott Bag					
25	Position Chg												
							61	Meds. Oral					
26	TPR						62	Meds. Parental					
27	Blood Pressure						63	Meds. Topical					
28	Monitor Q 1H						64	Meds. Rectal					
29	Monitor Q30'>						65	Meds. Instill					
30	Weight												
31	Urine Specimen						66	A.D.L.					
32	Urine Testing						67	Bladder Training					
33	Oxygen/Ventolin						68	Bowel Training					
34	Suction												
35	App. Heat & Cold						69	Res. Call Sys.					
36	Dressings						70	Bed-Make-Occ					
37	Pros/Orthos						71	Smoking Super					

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Care . These times are reported in Volume II of this report. When computing task times for each resident, the frequency of the activity was multiplied by the standard task times developed by Medicus. These times were adjusted in relation to the assessors' use of the low, medium and high service time indicators.

In determining care requirements for residents of long-term care facilities it is important to account for the variability in task completion time. This variability is a function of both the level of independence/dependence of the resident and the skill set of the nurse. One of the objectives of this study is to estimate the direct nursing and personal care requirements of different classes and types of residents as determined by their degree of independence/dependence. Because of this, in consultation with the Steering Committee, it was decided to attempt to approximate the variability in nursing time requirements through use of the task time distribution parameters.

Traditionally, estimates of nursing time requirements are derived simply by multiplying task frequencies by the mean performance time for the task. This approach was felt to be inadequate for the purposes of this study. The approach selected has two basic components.

- Data collectors were asked to determine, based upon the level of independence/dependence of the resident, whether an activity would require a relatively low, medium or high amount of time to complete;

- Parameters of the distribution of task times were used to estimate the amount of time associated with the low, medium, high estimates for each task.

To approximate the time required for a medium estimate of task completion time, the mean value for each distribution was used.

For the low and high estimates, a function of the standard deviation (from the mean) of the distribution of task times was used. For the high estimates, the mean plus one standard deviation was arbitrarily selected to be the time estimate. For the low estimate, the mean minus one-half the standard deviation was used. In this instance one-half the standard deviation was selected because of the shape of the task time distribution. Task times have been shown to be distributed according to a 'Gamma' distribution which is skewed to the right. As a result, if a full standard deviation was subtracted from the mean it would result in either negative times or unrealistically low times. To correct for this, we selected one-half the standard deviation to subtract from the mean to estimate the low task times. The integrity of this approach is derived from its ability to correct for the variability in nursing task times and from the use of service time parameters as the basis for estimating the time values used in these approximations.

For each resident in the sample, the total direct personal and nursing care time was calculated by summing the daily time required for each selected nursing task.

Across the sample of 2298 residents, the total nursing time required to care for a resident was combined with that resident's Type to establish the nursing time required to care for the average resident for each Type. For example:

If through Task Analysis, the total nursing time required for Mr. S is 60 minutes,

and

through classification and categorization, Mr. S's Type is determined to be Type 8,

then

the correlation can be made that this Type 8 resident requires 60 minutes of direct nursing care each day.

Similarly,

if the average time of all Type 8 residents in the sample is determined to be 62 minutes,

then

the correlation can be made that the average Type 8 resident requires 62 minutes of care each day.

An accepted limitation of any Task Analysis approach to measuring nursing time is the tendency of such measurement techniques to marginally inflate the overall estimate of nursing time required. This is because Task Analysis tends to treat nursing as a set of independent, mutually exclusive interventions. In reality, nursing is a process wherein nurses often complete more than one element of the process and more than one task at a time. This study has attempted to reduce the effect of treating nursing tasks as discrete events, by developing explicit definitions for each task, and relating each task to elements of the nursing process. However, there is still the potential that the direct care time requirements represented by this approach are slightly higher than is actually the case.

3.0 DATA COLLECTION METHODOLOGY AND DATA ANALYSIS

The purpose of this study was to collect data on the direct personal and nursing care requirements of residents of extended care facilities in Ontario. A large field effort involving nurses from 68 facilities, was required to conduct the 2298 assessments that were required throughout the province. This section describes the data collection process.

3.1 Pilot

A pilot was conducted prior to the actual study to test the appropriateness and efficacy of the training and data collection procedures. Two Nursing Homes and two Homes for the Aged that were not in the sample each provided two nurses to participate in the pilot.

A one day training session was held at Providence Villa to train the nurses in the use of the care requirement assessment tool. The training stressed that the assessments were focused on required rather than actual care. During the training the nurses had the opportunity to assess actual residents. The feedback received from the participants was subsequently used to streamline many of the training procedures for the actual study.

Following the training a one day on-site trial was conducted at each of the participating homes. These sessions were designed to test the on-site procedures that were to be used in the actual study. The sessions began with additional individualized training followed by at least ten assessments by each nurse. Two consultants attended each of these sessions to observe and to perform audits.

The audit of the pilot assessments indicated 94 percent agreement between the nurses from the homes and the nurse consultants on the

Typing of residents. The overall results of the pilot indicated that the data collection protocols were effective and that the tool had a high acceptance level from the staff who used it. Based on these results the actual field study commenced.

3.2 Data Collection

The sample of 68 homes for this study included 25 Homes for the Aged and 43 Nursing Homes. These homes were randomly selected by the Office of Senior Citizens' Affairs to be representative of all Homes for the Aged and Nursing Homes in Ontario. Stratification was based on criteria agreed upon by the Joint Provincial/Provider Steering Committee. A list of the homes that participated in the study is included in Volume II.

Each of the homes were initially contacted by mail and telephoned by their respective provincial Associations and were encouraged to participate in the study. Price Waterhouse followed-up with two telephone calls as well as with written correspondence to explain details related to the study and to arrange schedules for the training and on-site visits. Each home was asked to provide at least one nurse who met the following criteria:

- registered nurse;
- employed full time;
- employed by the home for at least one year;
- familiar with the residents; and
- involved in direct personal and nursing care.

The homes were reimbursed for the time spent by their nurses on this project as well as for related expenses.

Phases. The actual data collection was divided into two phases. The main purpose of this division was to facilitate regional training sessions as well as timely on-site start-up visits.

Phase one started August 17th and included homes in the central and western regions of the province. Phase two commenced September 9th and included the eastern and northern regions. The same set of procedures were followed in each phase.

Training. At the onset of each phase one day training sessions were held for the nurses from the homes. A total of five workshops were conducted at various central locations throughout the province. There was 100 percent attendance at all of these sessions.

The training sessions focused on helping the nurses to develop appropriate skill levels in the use of the care requirement assessment tool. The following agenda reflects the content of the training:

- Introduction to purpose of study and project implementation;
- Overview of methodology;
- Instruction on resident assessment of classification and categorization components;
- Instruction on Task Analysis;
- Group practice assessments;
- Actual resident assessments;
- Discussion and reliability testing; and,
- Orientation to data collection procedures.

Throughout the training the distinction between care provided and care required was stressed.

On-site Training. Following the training workshops each home received an on-site start-up visit from one of the nurse consultants. During these visits additional individualized training was conducted, including the review of four practice assessments that had been completed by the nurse from the home.

After completing the on-site training the nurse consultant drew a random sample of extended care residents to be assessed for the study. The number of residents selected from each home was predetermined by statisticians consulted by the Office for Senior Citizens' Affairs to ensure that the total sample was representative of extended care residents throughout the province. A random numbers table was used to select residents from complete lists of extended care residents that were provided by each home. In order to ensure confidentiality only coded numbers were used to identify the residents.

Following the selection of the sample of residents the nurse consultants assisted the nurse assessors to begin their assessments. The consultants remained with the nurses until they felt confident that the nurses were performing adequately on their own.

Hotline Support. A nurse consultant was available by telephone throughout the data collection period to answer any question related to the Typing instrument or the Task Analysis. The nurse assessors from the homes were encouraged to call the hotline for information if they had even the slightest doubt about how to score an item. During the study there were 67 calls to the hotline.

Data Return. The homes in each wave were given two weeks to complete all of their allotted assessments. It actually was four weeks before all of the data from each wave was received by Price Waterhouse. Staff scheduling problems were the most common factor delaying the completion of the assessments. All of the 2298 assessments were successfully completed and returned to Price Waterhouse.

Audit. An audit was conducted on 10 percent of all of the assessments to ensure that the final Typing results were accurate. Price Waterhouse randomly selected 10 percent (or a minimum of 4) of the residents from each home and prepared sealed envelopes containing copies of the original Typing instruments. These were given to nurse consultants from Medicus Canada who independently assessed the selected residents. The envelopes were then opened on-site to calculate the amount of inter-rater agreement. The overall audit found 95.8 percent agreement between the auditors and the nurse assessors.

3.3 Data Analysis

The expected number of 2298 assessments were all completed and returned to Price Waterhouse. Inspection of the assessment instruments indicated that in the majority of cases all procedures were followed correctly. In a few cases minor corrections were required. For example, one home neglected to record the correct identification codes on the assessment forms. Problems such as this were readily rectified, either by contacting the Home to gather missing data or determining appropriate information in-house, e.g., correct identification codes.

After the initial inspection the data was keyed onto floppy disks and processed using SPSS PC+ statistical software and a Compaq 386 computer. Standard data cleaning procedures were used to ensure the integrity of the data set, including:

- inspection of the raw data set;
- examination of frequencies to check for out-of-range values;
- verifying out-of-range data with the actual assessment forms; and,
- random comparisons between computed results and the actual assessment forms.

To conduct the data analysis it was necessary to compute Class, Nursing Response, Focus and Type for each resident. Exhibit 6, opposite presents brief definitions of each of these variables. In addition, the total minutes of care required for each resident was computed from the Task Analysis. The procedures outlined in the description of the Medicus Methodology (see section 2) were used to compute these variables.

Summary. The nurses from the homes conducted the assessments in a professional and reliable manner. The data collection process was completed according to plan. The results are presented in the following section.

4.0 PRESENTATION OF RESULTS

This section presents the results of the data analysis. Each figure and table is accompanied by a description of the variables and statistics that are presented. The figures and tables are organized in two sets. The first set presents the results of the analysis for the entire sample of 2298 residents. The second set presents the same figures and tables broken down by Nursing Homes and Homes for the Aged. Each set contains the following:

- Age
- Gender
- Frequencies:
  - Class
  - Nature of Dependence
  - Focus of Care
  - Type
- Average Minutes of Direct Personal and Nursing Care:
  - Total Minutes Of Direct Nursing Care Required
  - Class
  - Nature of Dependence
  - Focus of Care
  - Type

Two cautions should be considered when interpreting the results presented in the tables. First, the large sample size (N=2298) increases the likelihood of obtaining statistically significant findings. A conservative significance level of $p < .01$ has been used as the criteria for statistical significance. However, it should be noted that statistically significant differences do not always equate with meaningful differences.

A second caution involves the matrices that present minutes of direct care by the 24 possible types. The number of cases in some of the cells of these matrices are too small to interpret. Any cell with less than 20 cases probably does not present a true reflection of the mean for that group.

The age of the residents in the sample ranged from 29 to 108 years with a mean age of 83 years. Females accounted for 72.8 percent of the sample.

The results of the study indicate that the mean minutes of direct personal and nursing care required by extended care residents in Ontario is 102 minutes per day with a standard deviation of 85 minutes. The 95 percent confidence interval around the mean ranges from 99 to 105 minutes. Homes for the Aged have a mean time of 105 minutes per day. Nursing Homes have a mean time of 99 minutes per day. The difference in average time between the two types of facilities is not statistically significant.

As previously indicated, this study examines the direct personal and nursing care requirements of residents in Nursing Homes and Homes for the Aged. The study does not examine the actual care provided to the individual resident, nor does it address specific programming or the "quality of care" provided in Extended Care facilities. Consequently, while the study indicates that the difference in average time between the two types of facilities is not statistically significant, it is not possible to draw any conclusions about the appropriateness of current funding and/or per diems in Nursing Homes and Homes for the Aged.

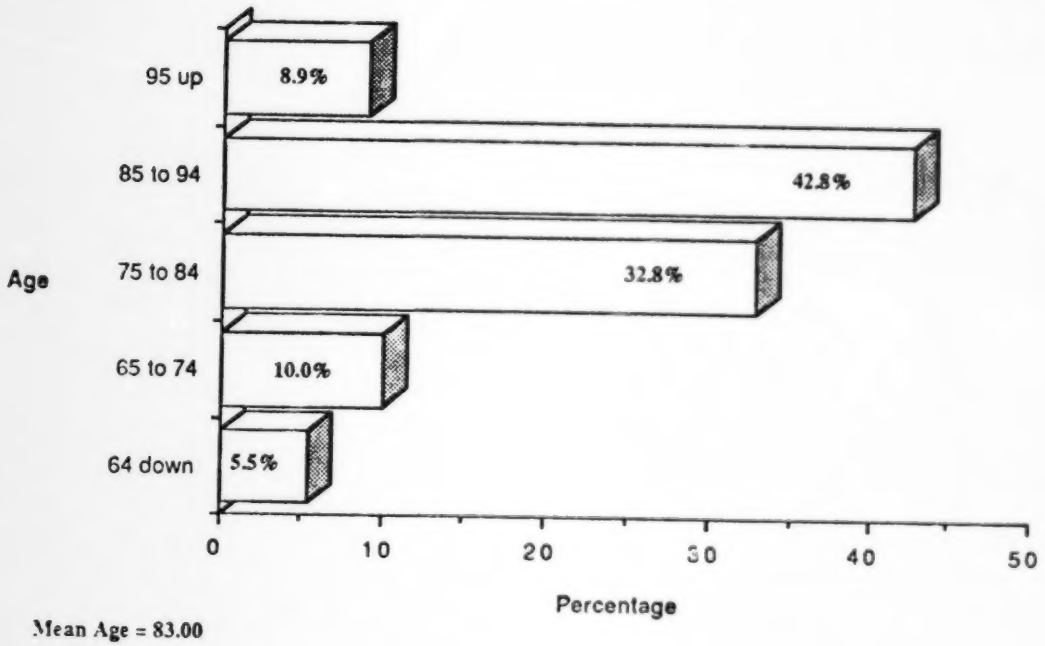
The tables and their descriptions comprise the remainder of this section. The first set of results describes the analysis on the total sample. The second set describes the results broken down by type of Home.

Results: Part 1

The following charts and tables provide information for the Total Sample

Age Breakdown of Total Sample

(N=2298)



Mean Age = 83.00

The mean age of residents in the sample is 83, ranging from 29 years to 108 years of age. Exhibit 7 presents age broken down into five categories. For example, those residents 64 to 74 years old account for 10% of the total sample.

Gender Breakdown of Total Sample

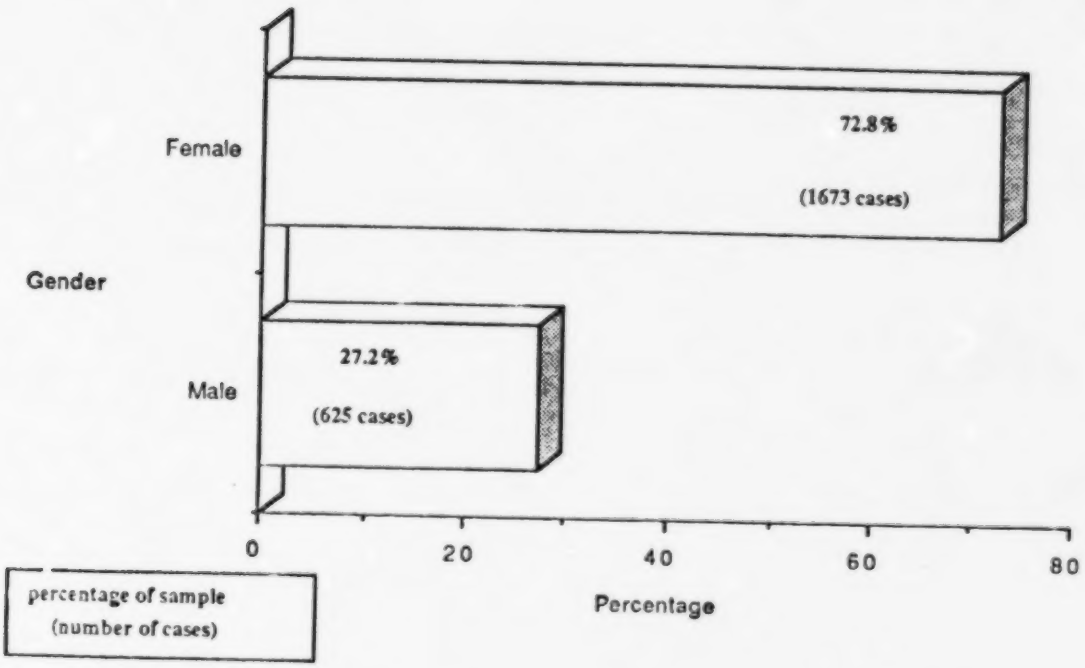


Exhibit 8 presents the proportion of males to females in the sample. There are more than twice as many females as males. Females account for 72.8% of the sample.

Frequency of Class/Level of Independence in Total Sample

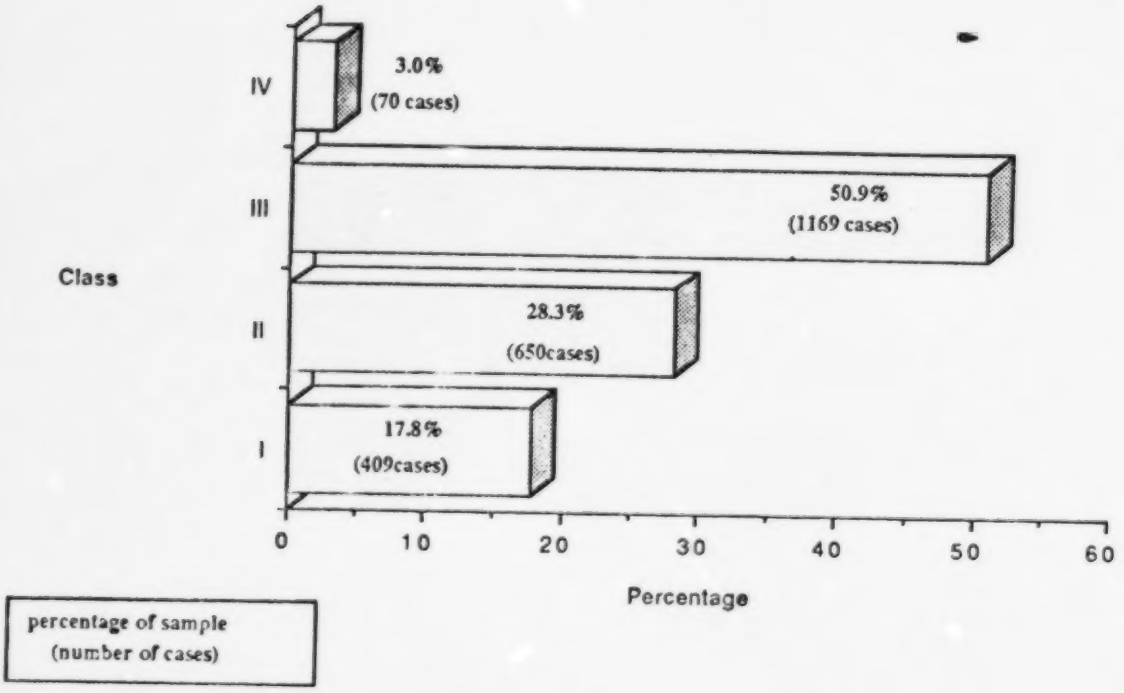


Exhibit 9 presents the four classes of residents. Class represents levels of independence ranging from the most independent (Class I) to the least independent (Class IV). There are 409 residents or 17.8% of the sample that fall into Class I. There are 650 residents or 28.3% that fall into Class II. The largest class grouping is Class III which accounts for 1,169 residents or 50.9% of the sample. Class IV is the smallest group, accounting for only 70 residents or 3% of the sample.

Frequency of Nature of Dependence in Total Sample

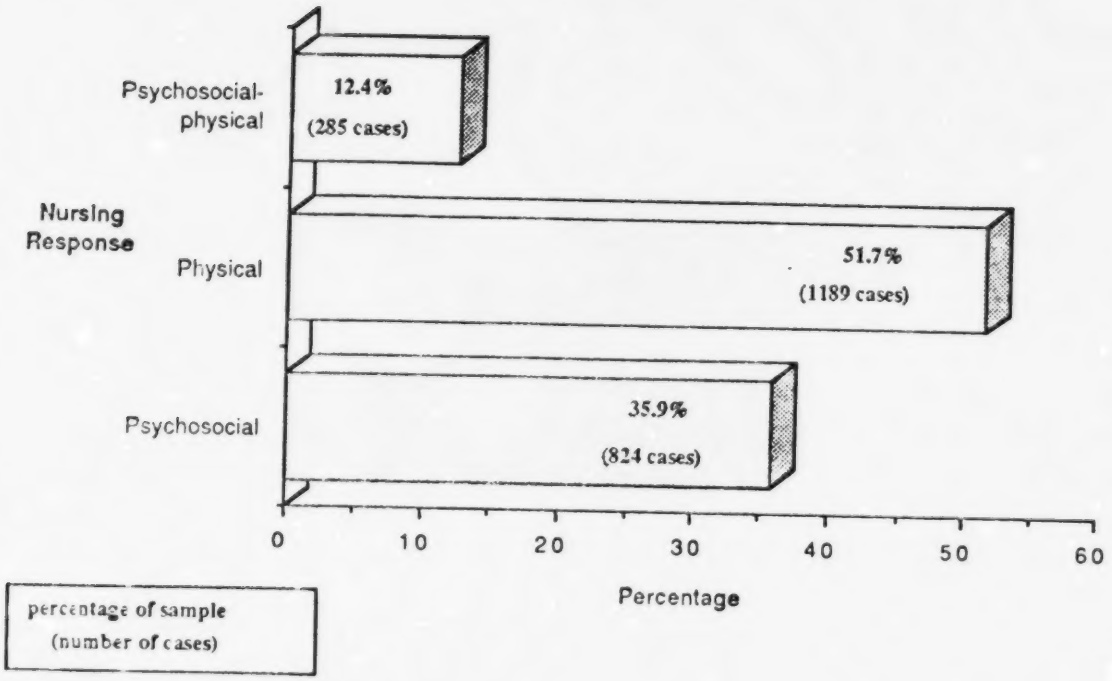


Exhibit 10 presents the three nursing responses which are psychosocial, physical and psychosocial-physical. Category I or psychosocial includes 35.9% of the sample or 824 residents. Category II, physical, is the largest of the three categories accounting for 51.7% of the sample or 1,189 residents. Category III, psychosocial-physical, is the smallest category accounting for 12.4% of the sample or 285 residents.

Frequency of Primary Focus of Care Plan in Total Sample

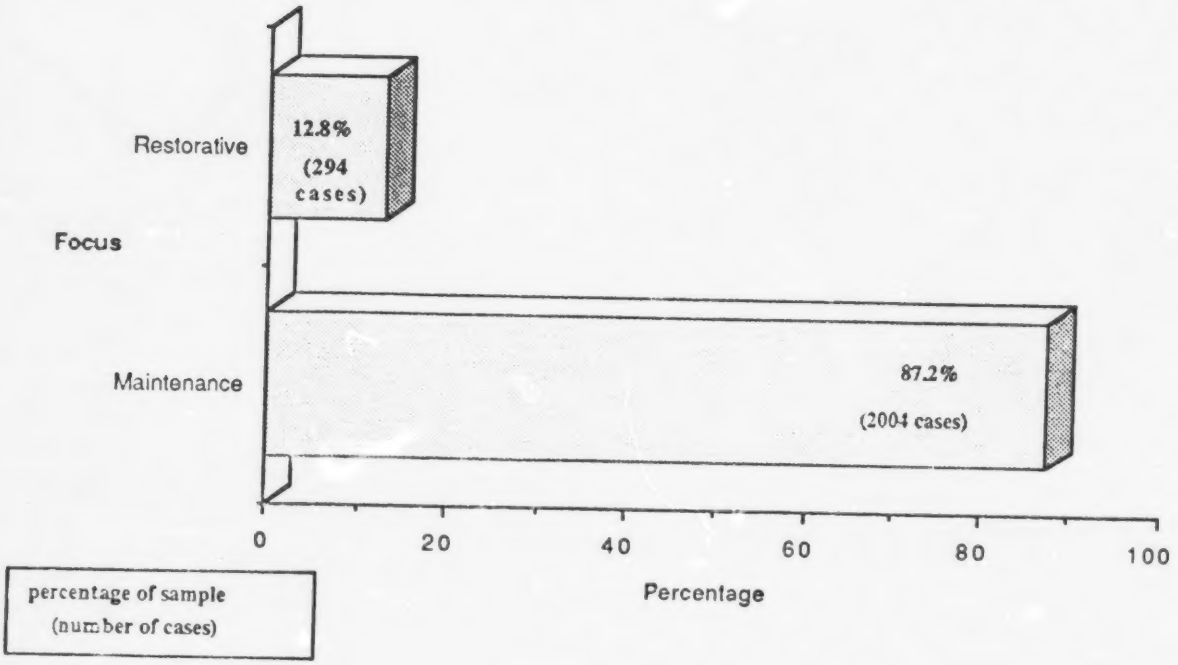
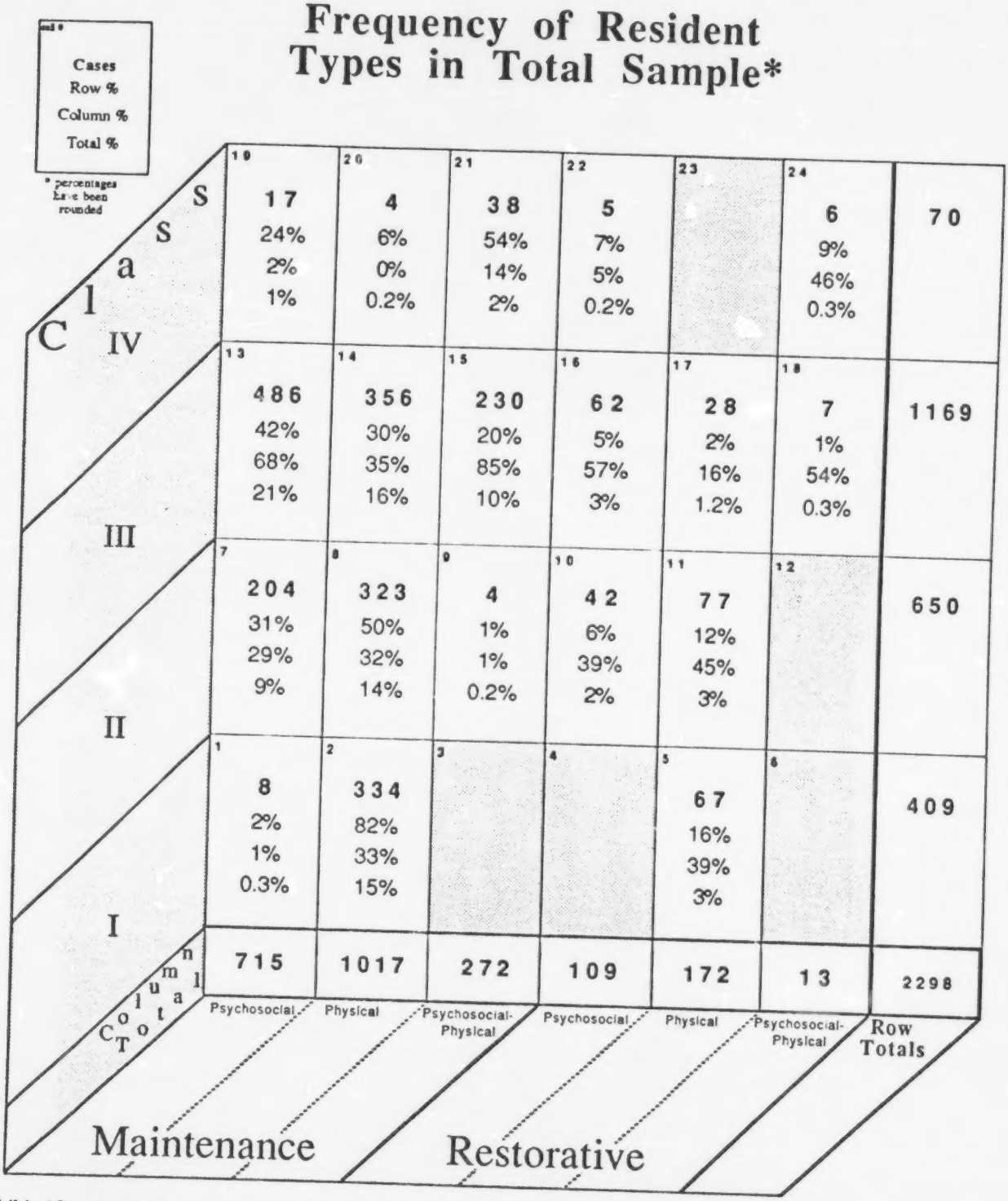


Exhibit 11 presents the primary focus of direct personal nursing care required for the residents. The two focuses of care are maintenance and restorative. Maintenance interventions are directed at maintaining or managing the resident's current status or coping with their status during deterioration. Restorative interventions are directed at improving functional status.

The main focus of care required for the residents in the sample is maintenance. This group accounts for 87.2% of the sample or 2,004 residents. The restorative focus accounts for only 12.8% of the sample or 294 residents.

Frequency of Resident Types in Total Sample*



Class	Maintenance: Psychosocial	Maintenance: Physical	Maintenance: Psychosocial-Physical	Restorative: Psychosocial	Restorative: Physical	Restorative: Psychosocial-Physical	Row Totals
IV	17 / 24% / 2% / 1%	4 / 6% / 0% / 0.2%	38 / 54% / 14% / 2%	5 / 7% / 5% / 0.2%		6 / 9% / 46% / 0.3%	70
III	486 / 42% / 68% / 21%	356 / 30% / 35% / 16%	230 / 20% / 85% / 10%	62 / 5% / 57% / 3%	28 / 2% / 16% / 1.2%	7 / 1% / 54% / 0.3%	1169
II	204 / 31% / 29% / 9%	323 / 50% / 32% / 14%	4 / 1% / 1% / 0.2%	42 / 6% / 39% / 2%	77 / 12% / 45% / 3%		650
I	8 / 2% / 1% / 0.3%	334 / 82% / 33% / 15%			67 / 16% / 39% / 3%		409
Column Totals	715	1017	272	109	172	13	2298

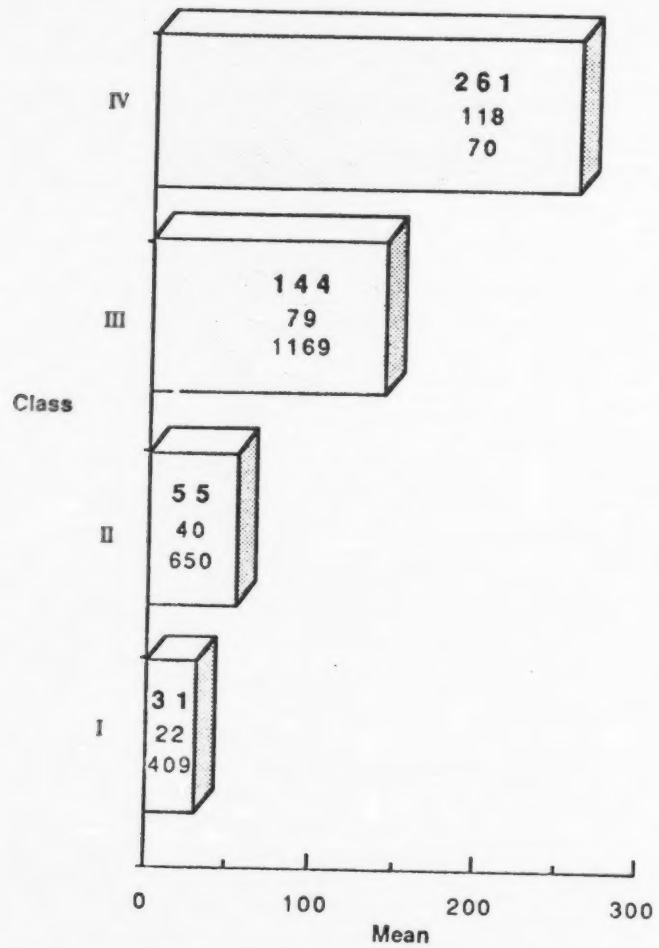
Exhibit 12 presents the various levels of type of resident. Type of resident is derived from the combination of the four classes, the three categories and the two focuses of care. There is the possibility of 24 different types. There are 19 types represented in the sample. This matrix illustrates the number of residents falling into each type as well as the row percentage, the column percentage, and the percentage of the total sample that each type represents. For example, type 13 accounts for 21.1% of the sample or 486 residents.

Average Minutes of Direct Personal and Nursing Care Required per Resident in Total Sample

	Mean	Std. Dev.	25th	50th	75th	95 % Confidence Interval for Mean
			Percentile			
Computed Using Type Averages	104	56	48	117	161	101 to 106
Computed Using Raw Scores	102	85	35	79	149	99 to 105

Exhibit 13 presents the average minutes of direct personal and nursing care required for the entire sample of extended care residents. The table presents the mean, median, standard deviation, 25th, 50th and 75th percentiles, as well as the 95 percent confidence intervals for the mean. The times are calculated using two methods: actual mean time and averaged time by type. The actual mean time is calculated using the total minutes of required care indicated by the Task Analysis for each resident. The mean time using this method is 102 minutes. To calculate the averaged time by type, each resident is assigned the average time for their care type as opposed to using their actual task time. For example, residents falling into care type 7 are all assigned the averaged time of 40 minutes. The advantage of this method is that it normalizes the distribution. However, many of the average times per type are based on a handful of cases. For this reason the averaged time per type should be interpreted conservatively. The mean time using this method is 104 minutes. The actual mean time is presented in all of the following tables and figures.

Average Minutes of Direct Personal and Nursing Care Required per Resident by Class/Level of Independence in Total Sample



Mean
Std Dev
Cases

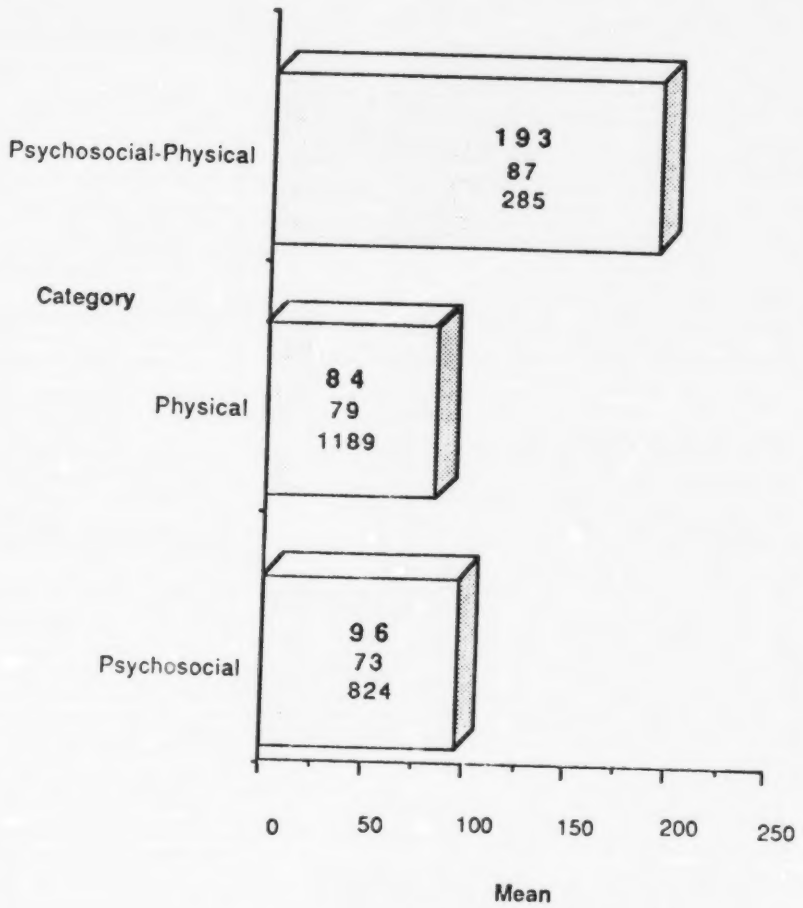
Analysis of Variance: F= 591 P< .01

Kruskal-Wallis: χ^2 = 1274 P< .01

Exhibit 14 illustrates the total minutes of direct personal and nursing care required per resident for each of the four classes of care. The mean care time for each class increases from Class I to Class IV. The minutes of care required by each type are significantly different ($p < .01$).

Class I has a mean value of 31 minutes with a standard deviation of 22. Class II has a mean of 55 minutes of care required with a standard deviation of 40. Class III has a mean of 144 minutes of nursing care required with a standard deviation of 79. Class IV has a mean of 261 minutes of nursing care required per person with a standard deviation of 118.

Average Minutes of Direct Personal and Nursing Care Required per Resident by Nature of Dependence in Total Sample



Mean
Std Dev
Cases

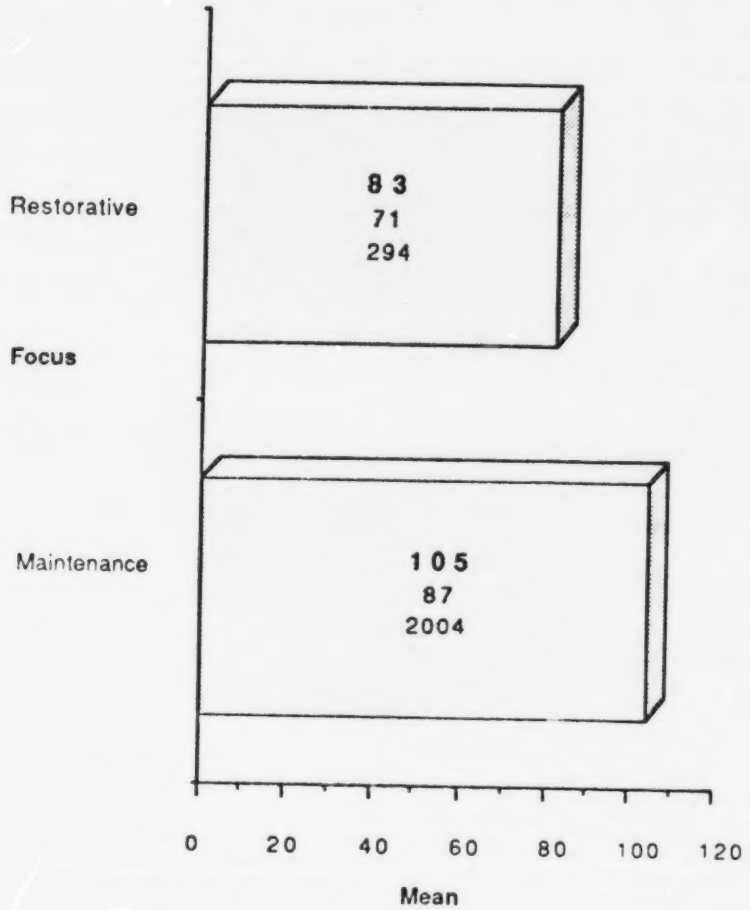
Analysis of Variance: F= 226 P< .01

Kruskal-Wallis: χ^2 = 368 P< .01

Exhibit 15 presents the total minutes of direct personal and nursing care required per resident broken down by the three nursing responses: psychosocial, physical, psychosocial-physical. The mean minutes of care required is significantly different between the three categories ($p < .01$).

Category I, psychosocial, has a mean of 96 minutes of required nursing care with a standard deviation of 73. Category II, physical, has a mean of 84 minutes of required nursing care with a standard deviation of 79. Category III, pyschosocial-physical, has a mean of 193 minutes of care required per person with a standard deviation of 87.

Average Minutes of Direct Personal and Nursing Care per Resident by Primary Focus of Care Plan in Total Sample



Mean
Std Dev
Cases

Analysis of Variance: F= 18 P< .01

Kruskal-Wallis: χ^2 = 17 P< .01

Exhibit 16 illustrates the total minutes of direct personal and nursing care required per resident broken down by the two focuses that a care plan may take which are maintenance or restorative. The mean minutes of care required by each focus is significantly different ($p < .01$).

Those residents that have a maintenance focus have a mean time of 105 minutes of required care with a standard deviation of 87. Those that have a restorative focus in their care plan have a mean time of 83 minutes of required nursing care per resident with a standard deviation of 71.

Average Minutes of Direct Personal and Nursing Care Required by Resident Type in Total Sample

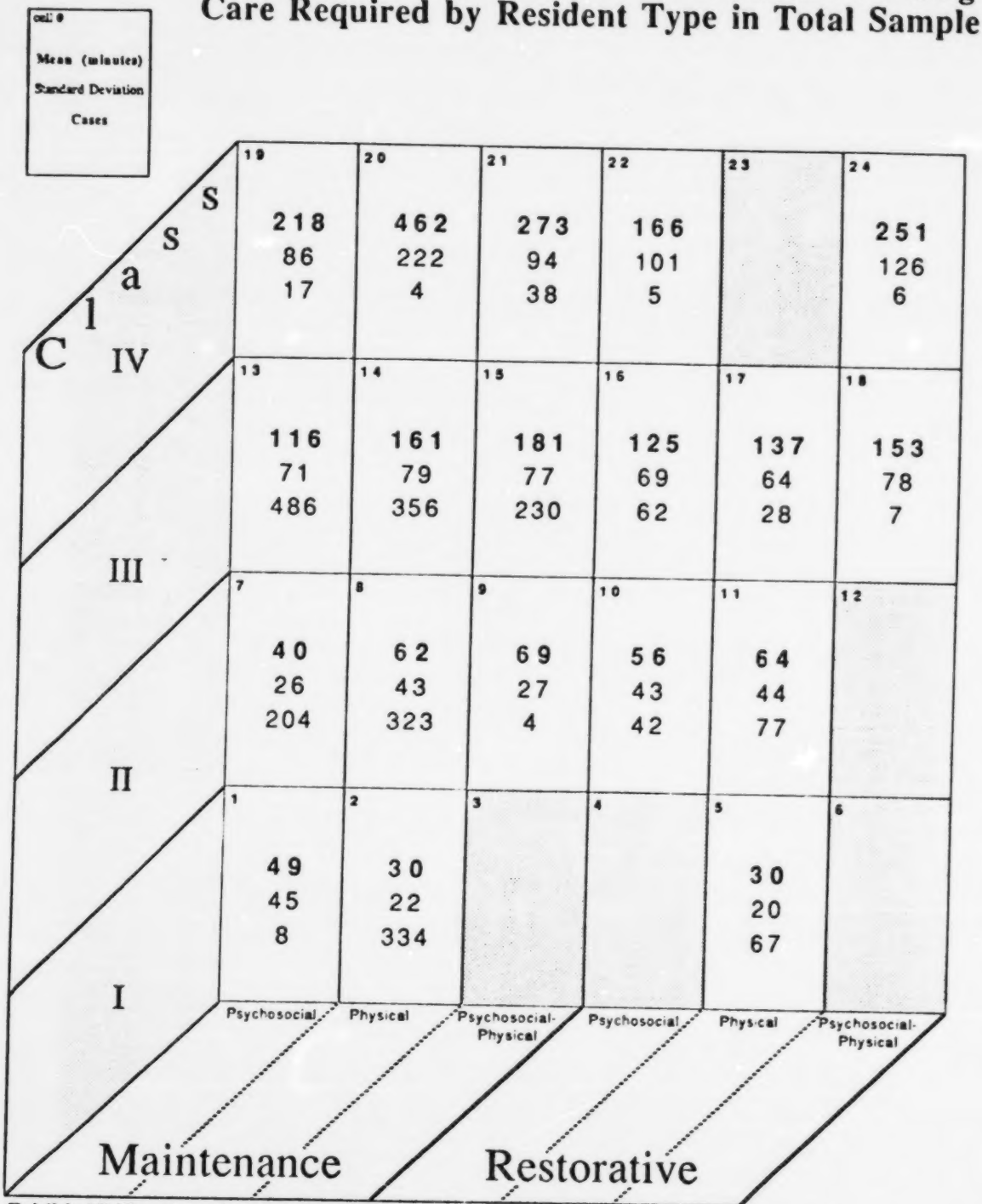


Exhibit 17 illustrates the 24 care requirement types and provides the mean minutes of care required, the standard deviation and number of cases (residents) per cell. For example, the mean minutes of care required for type 13 is 116 minutes per resident, with a standard deviation of 71 minutes. There are 486 residents in type 13.

There are no cases that fall into cells 3, 4, 6, 12 or 23 so these remain blank. Some cells have a very small number of cases (cells 1, 9, 18, 19, 20, 22, 24): these mean times should be interpreted cautiously.

Results: Part 2

The following charts and tables provide information for the sample broken down by Homes for the Aged and Nursing Homes.

Exhibit 18

Age Breakdown in Nursing Homes and Homes for the Aged

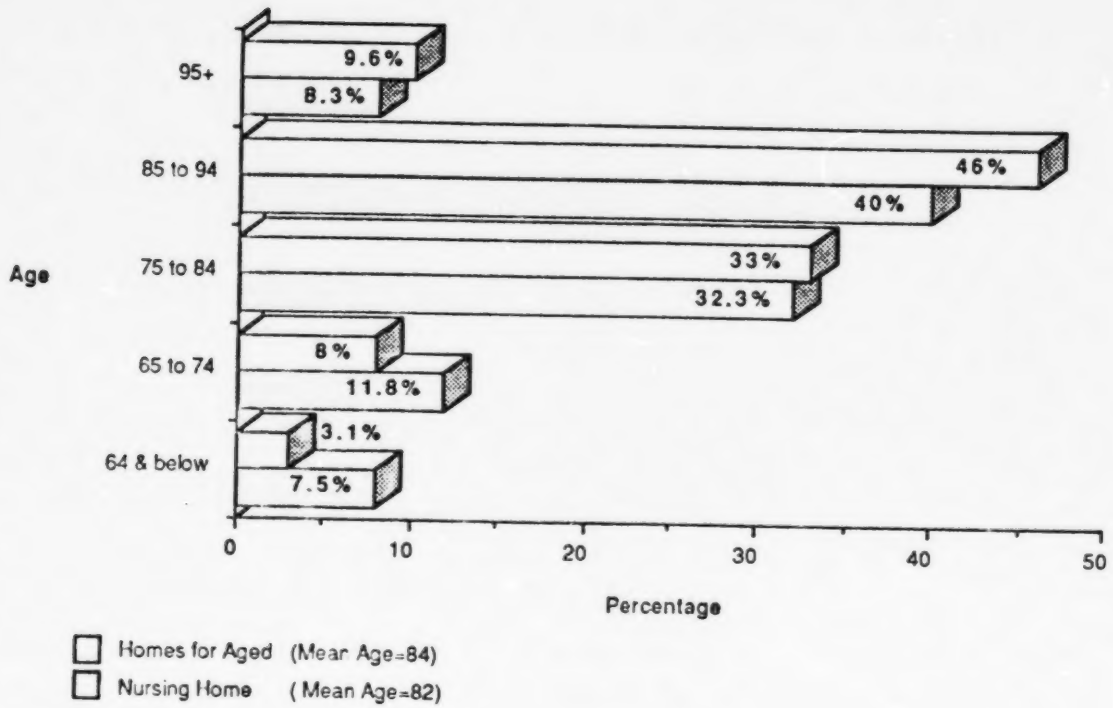


Exhibit 18 presents age broken down into five categories. For example, those residents 85 to 94 years old account for 46% of the residents in Homes for the Aged and for 40% of the residents in Nursing Homes .

The mean age of residents in Homes for the Aged is 84, ranging from 49 years to 108 years of age. The mean age of residents in Nursing Homes is 82, ranging from 29 years to 105 years of age.

Gender Breakdown by Type of Home

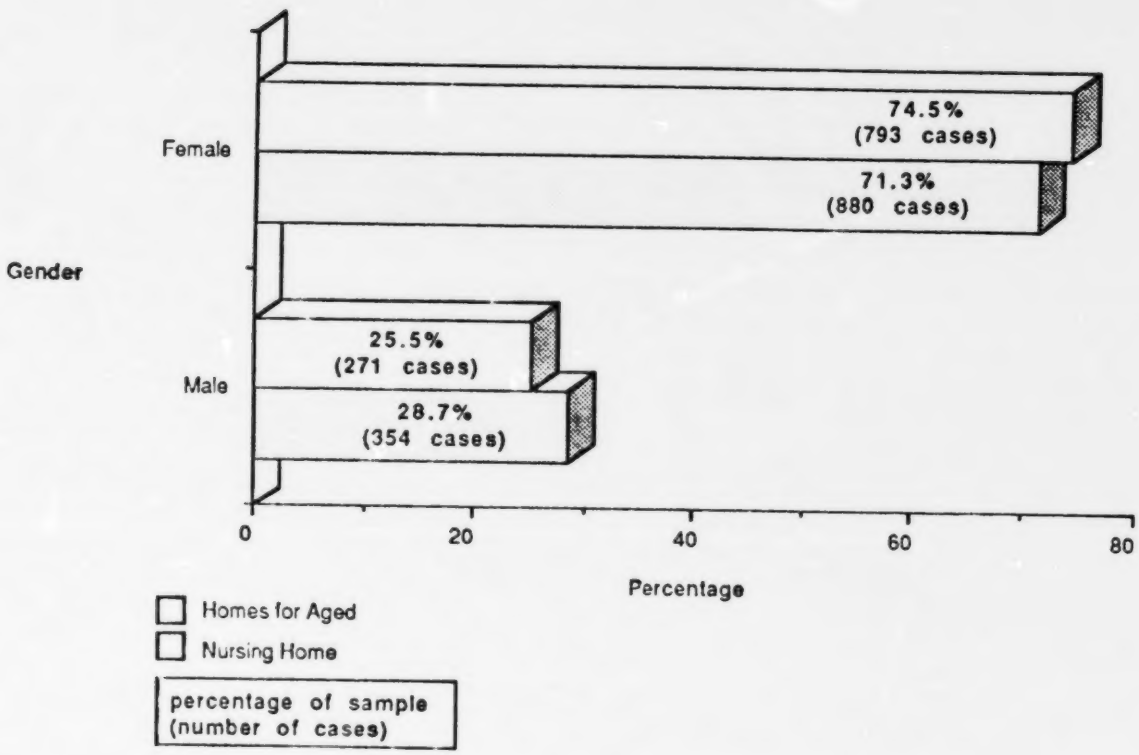


Exhibit 19 presents the proportion of males to females in Homes for the Aged and Nursing Homes. Females account for 74.5% of the Homes for the Aged sample and 71.3% of the Nursing Home sample.

Frequency of Class/Level of Independence by Type of Home

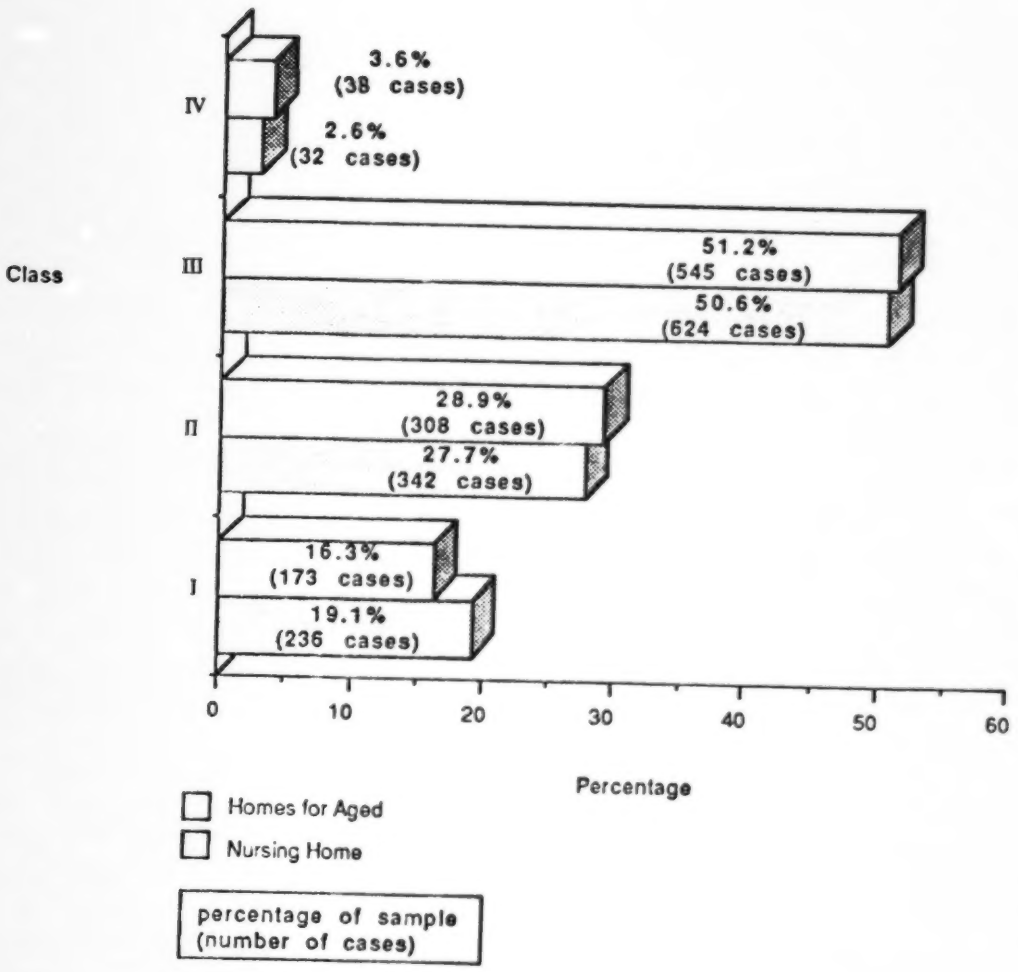


Exhibit 20 presents the four classes of residents by Homes for the Aged and Nursing Homes. Class represents levels of independence ranging from the most independent (Class I) to the least independent (Class IV). Class III is the largest group for both Homes for the Aged and Nursing Homes. Class III in the Homes for the Aged accounts for 51.2% of the residents while in Nursing Homes Class III accounts for 50.6% of the residents.

Class IV is the smallest group in both the Homes for the Aged and the Nursing Homes, accounting for only 3.6% of the Homes for the Aged residents and 2.6% of the Nursing Home residents.

Frequency of Nature of Dependence by Type of Home

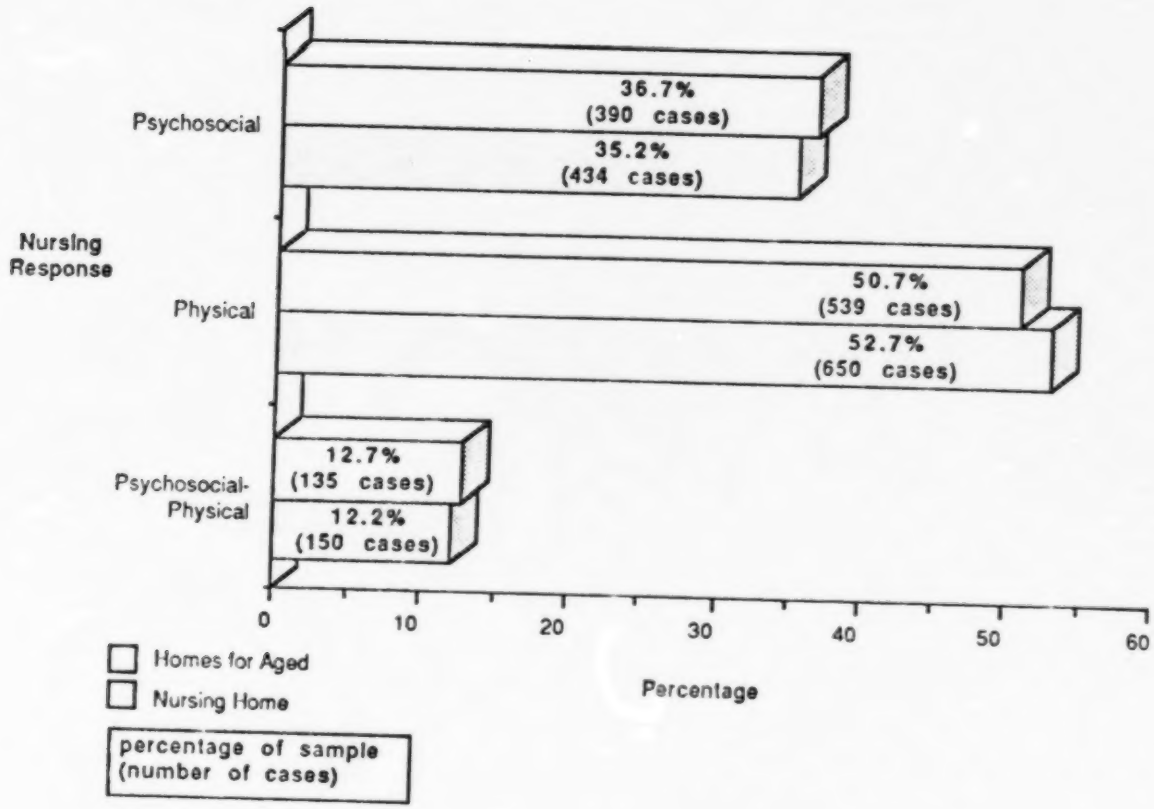


Exhibit 21 illustrates the three nursing responses to psychosocial, physical and psychosocial-physical care needs in Homes for the Aged and Nursing Homes. The largest category in both is physical. In Homes for the Aged this category accounts for 50.7% of the residents and in Nursing Homes this category accounts for 52.7% of the residents.

The smallest of the three categories is psychosocial-physical, accounting for 12.7% of the residents in Homes for the Aged and 12.2% of the residents in Nursing Homes.

Frequency of Focus of Care Plan by Type of Home

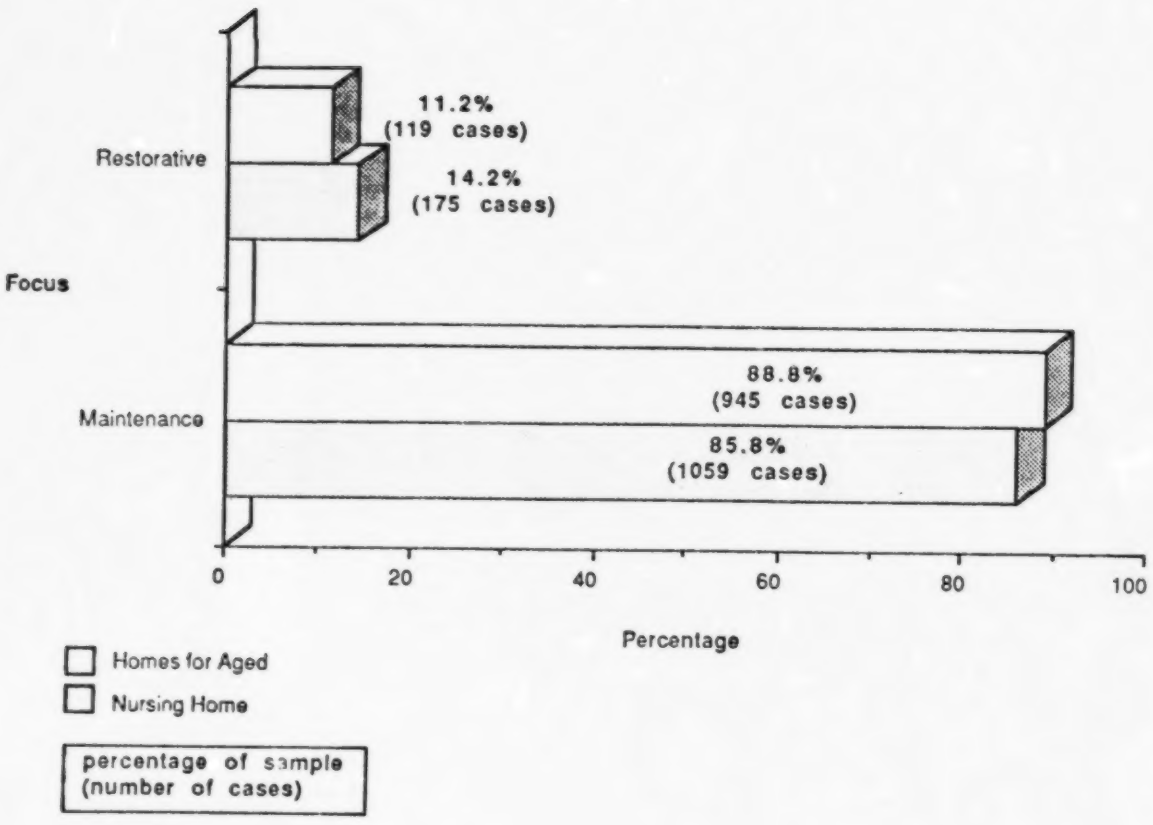


Exhibit 22 presents the primary focus of care for the residents by Homes for the Aged and Nursing Homes. The two focuses of care are maintenance and restorative. Maintenance interventions are directed at maintaining or managing the resident's current status or coping with their status during deterioration. Restorative interventions are directed at improving functional status. In the Homes for the Aged 88.8% of the residents also have a care plan aimed at maintenance or managing their current status. In the Nursing Homes 85.8% of the residents have a care plan directed at maintaining their current status.

Frequency of Resident Types by Type of Home

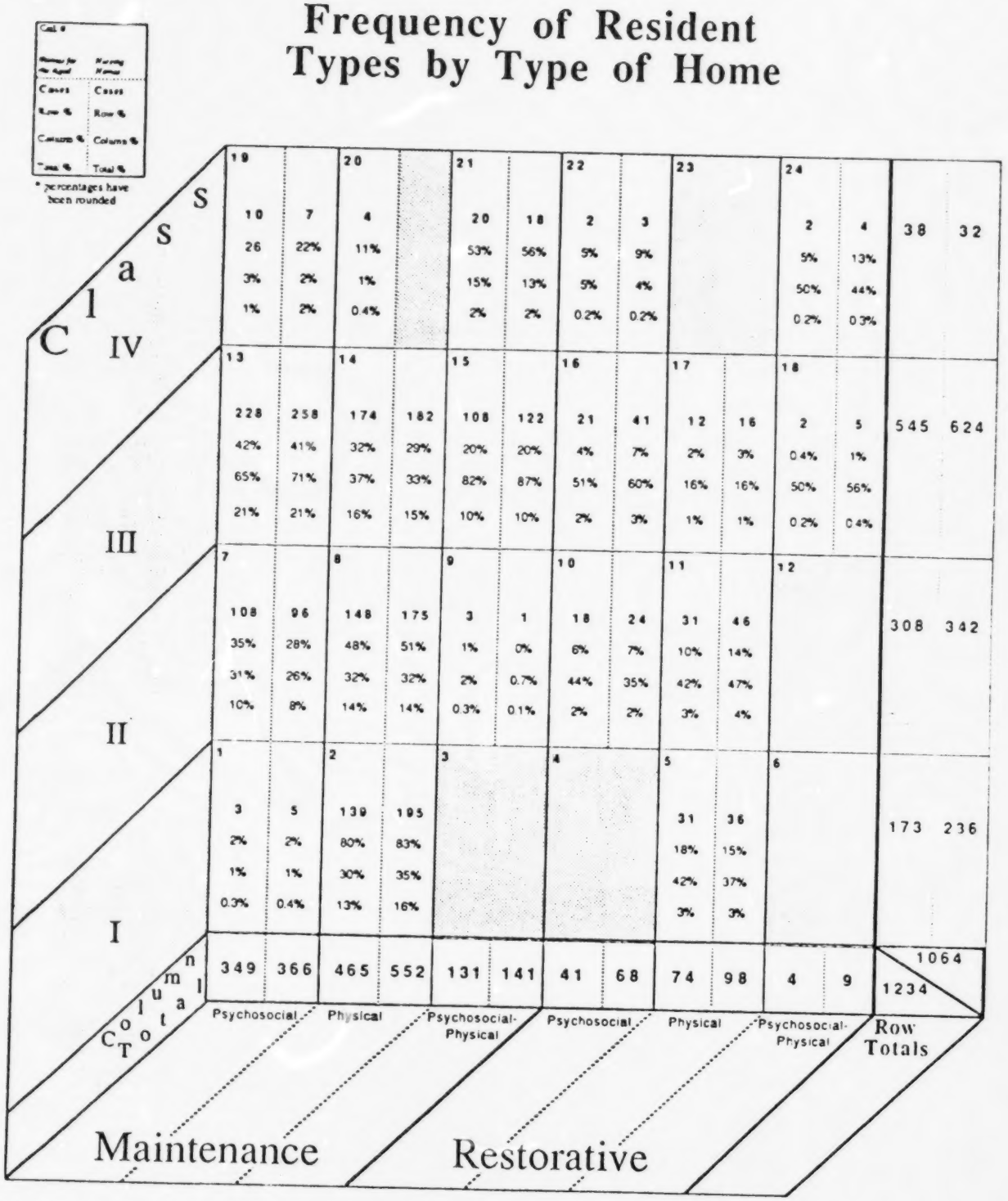


Exhibit 23 presents the various levels of type of resident by Homes for the Aged and Nursing Homes. Type is a combination of the four classes, the three categories and the two focuses of care. There is the possibility of 24 different types. Homes for the Aged have 19 different types while Nursing Homes have 18 different types. This table presents the number of residents and percentage of the sample that each type represents. For example, in the Homes for the Aged, type 13 represents 21% of the sample or 228 residents, while in Nursing Homes, type 13 represents 21% of the sample or 258 residents.

Average Minutes of Direct Personal and Nursing Care Required per Resident by Type of Home

	Homes for the Aged	Nursing Homes
	Computed Using Raw Scores	Computed Using Raw Scores
Mean	105	99
Std. Dev	88	83
25th Percentile	34	36
50th Percentile	83	76
75th Percentile	159	138
95 Percent Confidence Interval for Mean	100 to 111	94 to 104

Exhibit 24 presents the average minutes of direct personal and nursing care required per resident by Homes for the Aged and Nursing Homes. The table presents the mean, standard deviation, 25th, 50th and 75th percentiles, as well as the 95 percent confidence intervals for the mean. The actual mean time is calculated using the total minutes of required care indicated by the Task Analysis for each resident. The mean time using this method is 105 minutes for Homes for the Aged and 99 minutes for Nursing Homes.

Average Minutes of Direct Personal and Nursing Care Required per Resident by Class by Type of Home

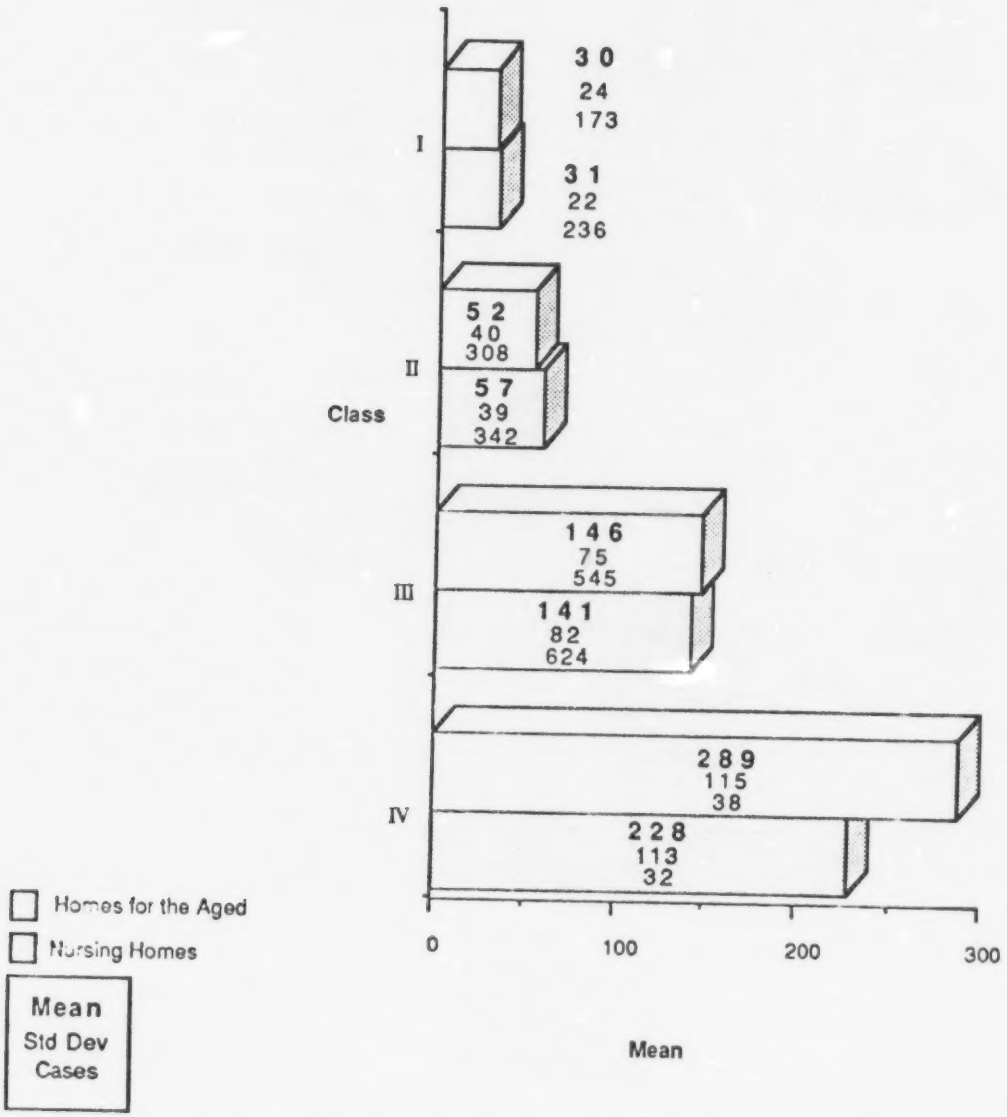


Exhibit 25 presents the total minutes of direct personal and nursing care required per resident for each of the four classes by Homes for the Aged and Nursing Homes. Class IV has the highest required time for both Homes for the Aged and Nursing Homes with mean nursing care times per resident of 289 and 228 minutes respectively. Class I has the lowest required time for both Homes for the Aged and Nursing Homes with mean nursing care times per resident of 30 and 31 minutes respectively.

Average Minutes of Direct Personal and Nursing Care Required per Resident by Nature of Dependence by Type of Home

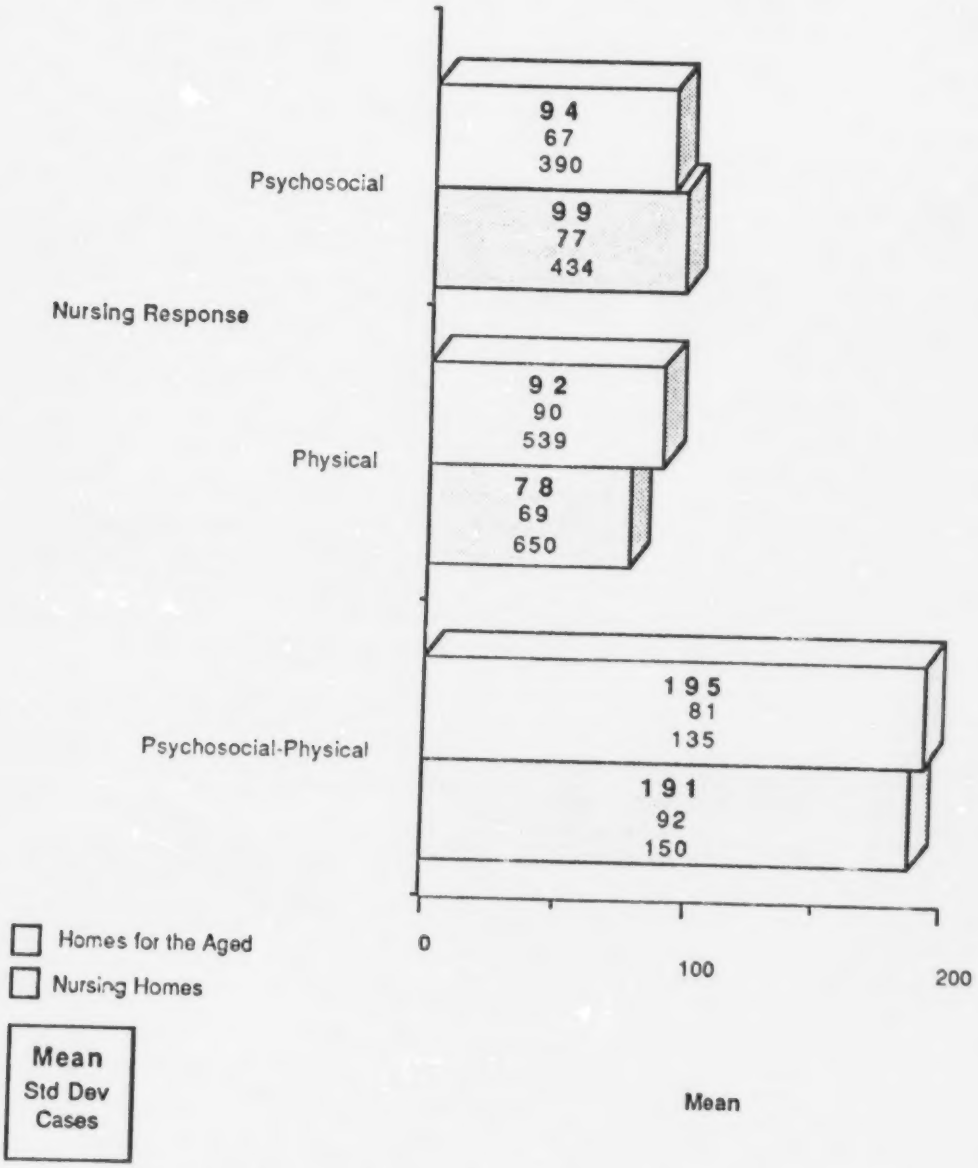


Exhibit 26 illustrates the total minutes of direct personal and nursing care required per resident broken down by Nursing Response: psychosocial, physical, psychosocial-physical for both Homes for the Aged and Nursing Homes. The psychosocial-physical category has the highest required care time for both Homes for the Aged and Nursing Homes. The mean nursing care times for the psychosocial-physical category are, 195 minutes for Homes for the Aged, and 191 minutes for Nursing Homes. The lowest required care time in both Homes for the Aged and Nursing Homes is the physical category. The mean required nursing care times for this category are 92 minutes for Homes for the Aged and 78 minutes for Nursing Homes.

Average Minutes of Direct Personal and Nursing Care Required by Primary Focus of Care Plan by Type of Home

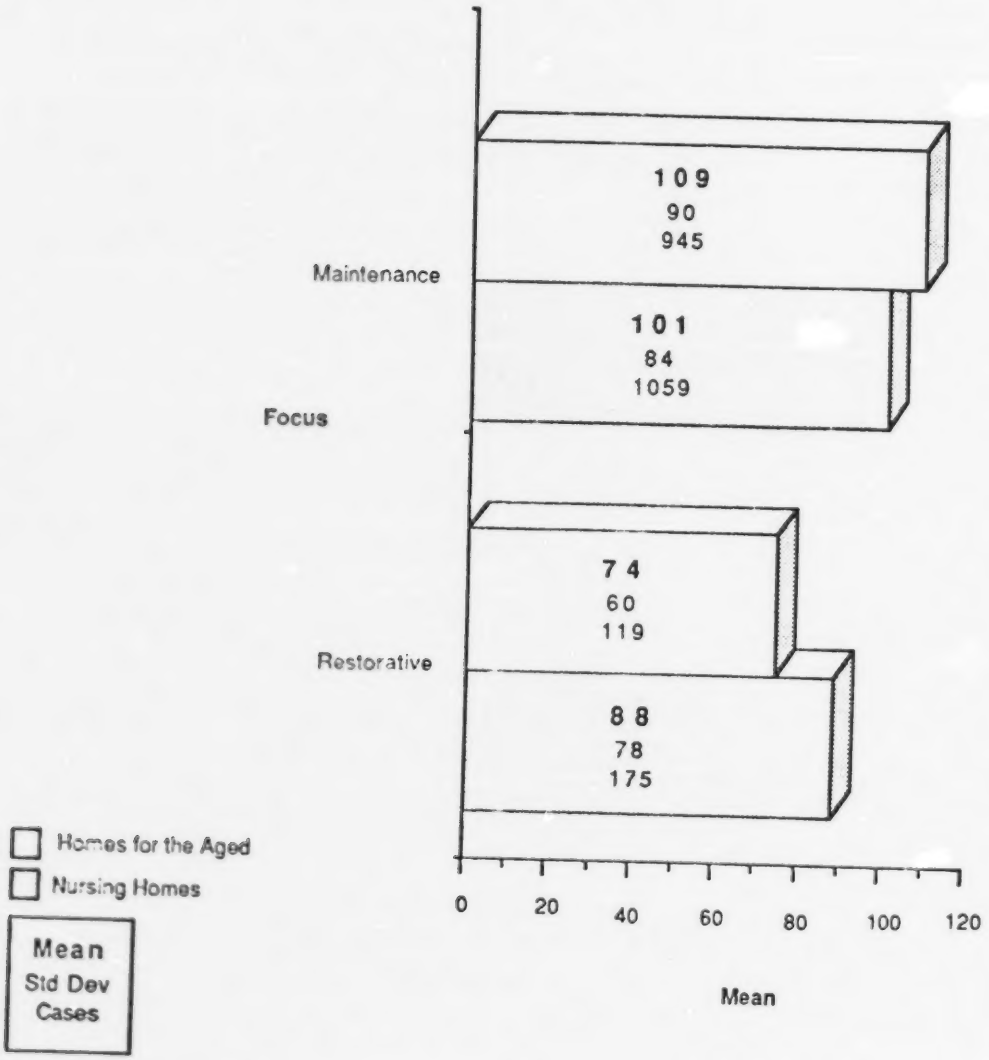


Exhibit 27 presents the total minutes of direct personal and nursing care required per resident for Homes for the Aged and Nursing Homes broken down by the focuses of the care plan, which are maintenance and restorative. Both Homes for the Aged and Nursing Homes have higher minutes of care required for the maintenance focus. In the maintenance focus Homes for the Aged residents have a mean time of 109 minutes of required care while Nursing Home residents have a mean time of 101 minutes of nursing care required per resident. The 119 Homes for the Aged residents who have a restorative focus have a mean time of 74 minutes of nursing care required per resident while the 175 Nursing Homes residents have a mean time of 88 minutes of required care.

Average Minutes of Direct Personal and Nursing Care Required by Resident Type by Type of Home

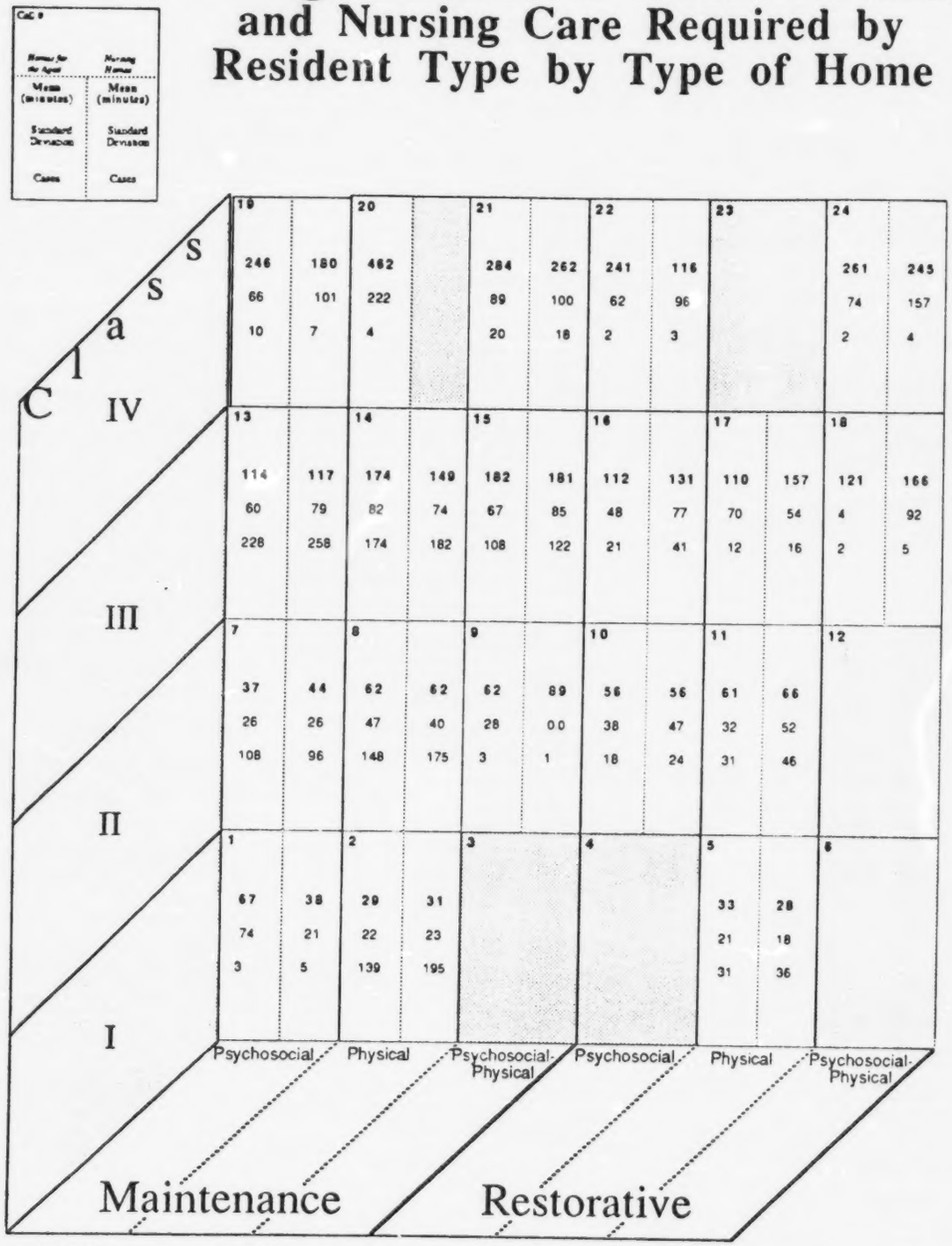


Exhibit 28 illustrates the 24 care requirement types and provides the mean time of care required in minutes, the standard deviation and the number of cases (residents) per cell for Homes for the Aged and Nursing Homes. For example, the mean minutes of care required for Homes for the Aged residents falling into type 13 is 114 minutes per resident, with a standard deviation of 60 minutes. The mean minutes of care required for Nursing Home residents falling into type 13 is 117 minutes per resident, with a standard deviation of 79 minutes. There are no residents that fall into cells 3, 4, 6, 12, 23. As well, there are no residents that fall into cell 20 for Nursing Homes, so these cells remain blank. Some cells (1, 9, 18, 19, 20, 22, 24) have a very small number of cases, thus the mean time of required care that they generate should be interpreted cautiously.